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BUREAU FOR RESILIENCE AND FOOD SECURITY

COVID-19 PROGRAMMATIC INITIAL ENVIRONMENTAL EXAMINATION (PIEE)

PROJECT/ACTIVITY DATA

Project/Activity Name:	RFS COVID-19Programmatic IEE (PIEE)
Geographic Location:	Global
Implementation Start/End Dates (FY or M/D/Y):	April 14, 2020 – April 14, 2025
RFS Tracking ID:	RFS-20-04-004

ORGANIZATIONAL/ADMINISTRATIVE DATA

RFS Implementing Office:	RFS/PO
Other Involved Operating Units:	RFS Centers and Offices
Prepared by:	Bill Thomas, RFS/BEO; based on AFR COVID-19 PIEE (April 2020)
Date Prepared:	April 7, 2020

ENVIRONMENTAL COMPLIANCE REVIEW DATA

Analysis Type:	Programmatic Initial Environmental Examination (PIEE)
Environmental Determinations:	Negative Determination with Conditions
IEE Expiration Date:	April 14, 2025
Additional Analyses Required:	IEE Amendment or new IEE with CRM specifics
Climate Risk Management Analysis:	Expected Activity Guidance CRM Table herein

PROJECT/ACTIVITY SUMMARY

This COVID-19 Programmatic Initial Environmental Evaluation (COVID-19 PIEE) is intended to provide RFS Operating Units (OUs), A/CORs and Activity Managers with preliminary analysis and recommendations to inform and facilitate their compliance with the Agency's mandatory Environmental Procedures (see 22 CFR 216 and ADS 204) as OUs initiate new interventions in response to the COVID-19 pandemic. **The intent of the document is to streamline the coverage of new interventions in response to COVID-19**. This programmatic document captures the generally-applicable analysis of potential environmental impacts and recommended mitigation measures that can be utilized as a resource for further detailed analysis at the project-level. This PIEE's findings will be operationalized through an IEE Amendment (or new IEE, as appropriate) by each project that references the analysis herein. The IEE Amendment can, in most cases, be very brief, and will:

- recommend the necessary threshold decision for amended existing activities being issued expressly for COVID-19 response actions; and
- avoid the need to repeat anything contained in this PIEE for ongoing mechanisms at the project-level to which COVID-19 response interventions are being added.

While this COVID-19 PIEE focuses only on new activities targeted to COVID-19, infection prevention measures that are referenced herein are equally relevant to other, ongoing programs. For instance, WHO and CDC guidance on how to reduce infection rates is applicable to all USAID programming (see

mitigation measures identified for Activity Type 1 in Annex 2), including, but not limited to, handwashing, use of disinfectants, social distancing, teleworking options, and avoiding large gatherings.

LIMITATIONS OF THE COVID-19 PIEE

This COVID-19 PIEE fulfills the narrowly defined task of helping to meet the environmental impact screening expectations of the Agency's Environmental Procedures. It does not provide official guidance on how USAID programs and operating units should respond to COVID-19; the USAID COVID-19 Task Force is the source of such official guidance.

ACTIVITY TYPES

This COVID-19 PIEE's analysis addresses the following illustrative activity types that could be expected as near-term interventions for COVID-19 response, as well as supports the activities described in the RFS COVID-19 response guidance for Feed the Future and the Water Directive.

1. Communications, outreach, analysis, planning, and other actions that typically have minimal, if any, impact on the environment.
2. Laboratory or research strengthening (e.g., vaccine research, equipment purchases, operation of laboratories, procurement and supply management, waste management)
3. Support for facilities and systems (e.g., provision of equipment, operation of facilities, procurement and supply management, support for waste management);
4. Support for use of disinfectants or germicides;
5. WASH (e.g. construction/rehabilitation of water points, hand washing stations);
6. Food security (e.g. food distribution);
7. Small-scale construction and rehabilitation (e.g., installation of mobile units, latrine construction, temporary construction);
8. Small and medium enterprises in support of COVID-19 response (e.g. PPE, sanitizer, or medical supply production).

This list of activity types is illustrative only. Activities undertaken in response to COVID-19 will utilize the guidance contained in this PIEE via a simple IEE Amendment or IEE as appropriate.

ENVIRONMENTAL DETERMINATIONS

A Negative Determination with Conditions is recommended for all activity types implemented in response to COVID-19. No categorical exclusions are recommended for these activities because the implementation of activities that would typically qualify for a Categorical Exclusion may present the risk of COVID-19 transmission. The implementation of any activities may result in workplace exposure and transmission, if precautions are not taken since COVID-19 transmission can occur both through aerosol expression from an infected person, as well as surface contamination.

Pursuant to 22 CFR 216.2(b)(1)(ii), the COVID-19 response activities covered herein do not qualify for an exemption from environmental examination without Assistant Administrator or Administrator clearance and Council on Environmental Quality consultation.

CONDITIONS OF THE IEE

1. As a streamlined mechanism to meet environmental compliance requirements, RFS Offices and Centers are requested to operationalize this COVID-19 PIEE guidance through the development of a activity-specific simple IEE Amendment (or new IEE) as appropriate.

2. This PIEE provides a preliminary analysis of environmental impacts and recommends a range of mitigation measures (summarized in Section 3 and 5 and detailed in Annex 1 and 2, respectively). The IEE or IEE Amendments prepared by RFS C/AORs will direct their partners to develop and implement an Environmental Mitigation and Monitoring Plan (EMMP) based on activity-specific mitigation measures. The RFS BEO will provide COVID-19 EMMP language.

CLIMATE RISK MANAGEMENT

The Climate Risk Management (CRM) Analysis contained herein was developed to cover likely RFS COVID-19 activities. IEE Amendments (or new IEEs, as appropriate) will need only to add very brief activity-level specifics not contained herein with guidance from the RFS Climate Integration Team.

IMPLEMENTATION

In accordance with 22CFR216 and Agency policy, the conditions and requirements of this document become mandatory upon approval. This includes the relevant limitations, conditions and requirements enumerated in this PIEE.

Approval:	Approved by email George Rowland, RFS/PO Office Director	04/14/2020 Date
Clearance:	Cleared by email Christine Gottschalk, RFS Chair for USAID COVID-19 TWG	04/14/2020 Date
Clearance:	Cleared by email Myra Emata-Stokes, PO POC for RFS COVID-19 TWG	04/13/2020 Date
Clearance:	Cleared by email John Gardner, Strategy Division Chief, RFS Program Office	04/13/2020 Date
Clearance:	Cleared by email Jami Montgomery, RFS Climate Integration Lead	04/14/2020 Date
Concurrence:	Concurred William Thomas, RFS Bureau Environmental Officer	04/14/2020 Date

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BUREAU FOR RESILIENCE AND FOOD SECURITY

COVID-19 PROGRAMMATIC INITIAL ENVIRONMENTAL EXAMINATION (PIEE)

Contents

1.0 PROJECT/ACTIVITY DESCRIPTION

1.1 PURPOSE OF THE PROGRAMMATIC IEE

This COVID-19 Programmatic Initial Environmental Evaluation (COVID-19 PIEE) is intended to provide RFS Operating Units (OUs), C/AORs, and Activity Managers with preliminary analysis and recommendations to inform and facilitate compliance with the Agency's mandatory Environmental Procedures (see 22 CFR 216 and ADS 204) as they initiate new interventions in response to the COVID-19 pandemic. To ensure cross-Agency coordination and a consistent approach, this PIEE was developed in consultation with: BEO teams in other regional and pillar bureaus, the Agency Environmental Coordinator, and the General Counsel for E3.

This COVID-19 PIEE is a critical element of USAID's mandatory environmental review and compliance process meant to achieve environmentally sound design and implementation. The purpose of this COVID-19 PIEE is described in more detail below:

1. The intent of the document is to streamline the coverage of new interventions in response to COVID-19 through a single RFS Global environmental compliance document and to require the development of a simple IEE Amendment (or new IEE, as appropriate) by each RFS project that references the analysis herein.
2. For ongoing activities already covered by an environmental compliance document that will initiate new COVID-19 response interventions, this RFS COVID-19 PIEE is intended to fully cover new or existing RFS projects focused on COVID-19 activities.
3. For COVID-19 response actions planned through new awards not yet covered by an IEE or RCE, an IEE Amendment or new IEE will provide the necessary threshold decision for those COVID-19 response actions, based upon the analysis and recommendations in this PIEE. To the extent

these awards are exclusively focused on the COVID-19 response, this PIEE should suffice to provide environmental compliance coverage.

This COVID-19 PIEE is not a decision document. While this environmental compliance document recommends threshold decisions and mitigation measures, the Environmental Procedures require that an A/COR or Activity propose the threshold decision for an activity. An IEE Amendment (or new IEE) can incorporate the analysis and recommendations of this COVID-19 PIEE by reference and thereby operationalize them in that decision document. Efficiencies will be achieved by not needing to repeat the analysis found in this COVID-19 PIEE.

This COVID-19 PIEE provides an examination of the potential environmental impacts from activities expected to be a part of USAID's COVID-19 responses, as well as recommended threshold determinations and appropriate mitigating measures for those activities. This preliminary analysis addresses a list of illustrative activities. Other activities undertaken in response to COVID-19 that are not addressed in this COVID-19 PIEE can be addressed through a simple IEE Amendment.

Simple IEE Amendment

The RFS BEO will work closely with any RFS Operating Unit that intends to initiate a response to the COVID-19 pandemic and assist in the preparation of a simple IEE Amendment (or new IEE, as appropriate). This document will provide guidance to:

- Identify the expected COVID-19 response activities;
- Describe additional mitigating actions that implementing partners (IPs) will be asked to undertake and to include in their EMMPs;
- Describe the new activities being initiated in response to COVID-19 that are not covered by a current IEE, and recommend threshold determinations and mitigating measures for those activities. The IEE Amendment will be the document that provides the mandatory environmental compliance review and threshold decision(s) for those activities based on this PIEE guidance.

An IEE Amendment is NOT needed if all COVID-19 response actions will be undertaken through existing activities for which a current IEE already covers the anticipated responses, as determined by the AOR/COR in consultation with the Bureau Environmental Officer (BEO). This COVID-19 PIEE aims to help RFS Offices and Centers to respond more rapidly and easily to the Agency's mandatory Environmental Procedures, avoiding delays in initiation of COVID-19 response actions.

Other Relevant Guidance

This environmental compliance document must be viewed in the full context of guidance, recommendations, and policy direction being developed and issued by USAID and by partner governments regarding the COVID-19 pandemic. This COVID-19 PIEE references Agency guidance and procedures available at the time of preparation. In preparing an IEE Amendment (or new IEE) related to COVID-19 response actions, RFE OUs should remain alert to new guidance, recommendations, and policy that may relate to the design and implementation of those actions.

1.2 INTERVENTION CATEGORIES/ACTIONS

For purposes of this PIEE, USAID's COVID-19 response is expected to include work in the support areas listed below. This list is illustrative only. Response activities not found in this list can be addressed in the IEE Amendment. In addition, this PIEE supports the activities described in the RFS COVID-19 response guidance for Feed the Future and the Water Directive.

1. Communications, outreach, analysis, planning, and other actions that typically have no impact on the environment;
2. Laboratory or research strengthening
3. Support for facilities and systems;
4. Support for use of disinfectants or germicides;
5. WASH;
6. Food security;
7. Small-scale construction and rehabilitation;
8. Small and medium enterprises in support of COVID-19 response.

1.3 ACTIVITY OVERVIEW

The COVID-19 disease driving the 2020 pandemic is new and distinct from other respiratory illnesses. Although coronavirus and influenza infections may present similar symptoms, the virus responsible for COVID-19 is different with respect to community spread and severity. There is still much to discover about the disease and its impact in different contexts. Preparedness, readiness, and response actions -- including social distancing -- will continue to be driven by rapidly accumulating scientific and public health knowledge. It is apparent that USAID interventions related to COVID-19 will include Agency-wide efforts and Mission-specific interventions in the form of new activities and pivots of existing activities.

As of April 6, 2020, the U.S. Government had approved $209 million from the USAID Emergency Reserve Fund (ERF) for Contagious Infectious-Disease Outbreaks to address the COVID-19 pandemic. In responding to the global public health emergency, USAID is working to boost the capacity of laboratories across the developing world to ensure future preparedness against this novel coronavirus. USAID has issued a determination to make the funds from the ERF available to combat the increasing health threat in developing countries affected by, or at high-risk of the COVID-19 pandemic. This fulfills the U.S. Department of State's pledge for international efforts to combat COVID-19.

The Bureau for Resilience and Food Security (RFS), through new and existing mechanisms, may support the development of approaches and tools related to preparedness, readiness, communication, supplies and equipment, training, capacity building, and humanitarian response actions driven by the rapidly accumulating scientific and public health knowledge on COVID-19. To help immediately combat the COVID-19 pandemic, Agency interventions aim to strengthen host governmental and IP preparedness and response to reduce transmission and, to the extent possible, limit the impact of the virus. USAID, with the support of its partners, is taking steps to organize an effective response to contain and end this pandemic, while protecting staff and partner staff. This USAID effort includes logistics, communication, developing a response plan and the eventual COVID-19 vaccination strategy.

1.4 INTERVENTION CATEGORIES/ACTIONS

To facilitate the environmental impact evaluation for this COVID PIEE, this document has been organized into primary activity categories or "Activity Types." An Activity Type is not an individual, named activity, but instead represents a range of types of predictable and similar activities that will require similar monitoring and mitigation measures. The COVID-19 specific Activity Types analyzed in this PIEE are noted in Table 1:

TABLE 1: ILLUSTRATIVE ACTIVITIES

Activity Type 1 – Communications, outreach, analysis, planning
Activity Type 2 – Laboratory or research strengthening
Activity Type 3 – Support for facilities and systems
Activity Type 4 – Use of disinfectants or germicides
Activity Type 5 – WASH
Activity Type 6 – Food Security
Activity Type 7 - Small Scale Construction and Rehabilitation
Activity Type 8 - Small and medium enterprises in support of COVID-19 response

USAID's COVID-19 response is expected to be both through modified programming of ongoing activities, as well as some targeted new activities. Many interventions by RFS OUs will remain the same even if pivoting to providing support to combat COVID-19. However, two discrete new programming areas are expected to be common elements in COVID-19 responses, and have implications for environment and health and safety management, namely:

1. Behaviors and protocols to contain the spread of COVID-19
2. The procurement, support, and use of disinfectants or germicides

This COVID-19 PIEE provides references throughout from USG and international organizations issuing guidance on the COVID-19 response (e.g., CDC, WHO, EPA). Nothing in this document should be relied upon as medical advice. Additionally, in Annex 3 of the COVID-19 IEE, the required USAID Pesticide Procedures (22 CFR 216.3(b)(1)a-l) have been met for RFS activities supporting disinfectant or germicide use. A "quick reference" of important environmental and health and safety information is provided in Annex 4.

2.0 BASELINE ENVIRONMENTAL INFORMATION

2.1 LOCATIONS AFFECTED AND ENVIRONMENTAL CONTEXT

The geographic context for RFS engagement may present complicating factors for response to the COVID-19 pandemic, including insufficient health care facilities and supplies, differing or ambiguous government guidance and mandates, and limited capacity to enforce measures to reduce infections (e.g., stay-at-home or quarantine orders). Additionally, RFS project locations have large at-risk populations (e.g., immunocompromised individuals and areas where malnutrition is an issue), potentially exacerbating the demands on the healthcare system. Labor migration both within and across borders that is common in much of the developing world also poses the risk of infecting communities far from disease centers (and accompanying healthcare facilities) and also increases the

risk of reinfection of communities that are recovering from COVID-19 outbreaks. The scale of the outbreak, the populations affected, local conditions, capacity for response, and infrastructure will strongly dictate the types of actions necessary and the scale of proposed interventions.

As COVID-19 outbreaks progress, communities where USAID commonly operates may face additional challenges. For example, mandated business closures may result in loss of household income, increased poverty, and food insecurity. In the longer term, as farming and business slow due to the virus, agricultural productivity may also significantly decrease, with food insecurity following. The longer-term social impacts are still unknown.

2.2 APPLICABLE AND APPROPRIATE PARTNER COUNTRY AND OTHER INTERNATIONAL STANDARDS, ENVIRONMENTAL AND SOCIAL LAWS, POLICIES, AND REGULATIONS

Since this PIEE addresses a global response, the IEE Amendment should reference applicable standards, laws, policies, and regulations for specific activity countries in relation to the COVID-19 outbreak. During a pandemic, standards can quickly evolve, and therefore, local officials should be consulted to identify applicable laws, policies, and regulations at the time of the intervention.

The U.S. government has issued guidance for U.S. consumers, which, as appropriate, can serve as additional reference for USAID activities. Local authorities are also likely to develop their own guidance and protocols. Online information may change as the knowledge about an outbreak evolves, therefore, any references should be regularly consulted.

- CDC's Cleaning and Disinfection of Households
- CDC's Coronavirus Disease Site
- CDC's How to Protect Yourself
- CDC's Information for Laboratories
- CDC's Guideline for Disinfection and Sterilization in Healthcare Facilities
- CDC: DIY Cloth Face Covering
- EPA's List N: Disinfectants for Use Against SARS-CoV-2
- WHO's Country & Technical Guidance - Coronavirus disease (COVID-19)

3.0 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACT

Each of the activities in this PIEE are evaluated for the potential direct, indirect, and cumulative environmental and social impacts. RFS activities related to COVID-19 may occur in support of food security facilities, research laboratories, food storage warehouses, governmental / private sector / IP offices, transport of people or materials, as well as in the natural environment when related to management of waste from community disinfection, WASH service provision, or construction. In general, the anticipated adverse environmental, health and safety impacts of COVID-19 response actions include the following:

Potential human health and safety impacts:

- Exposure to COVID-19 at gatherings, informational sessions, and while performing project work;

- Exposure to COVID-19 and contaminated wastes (e.g., used PPE) during and following USAID supported activities;
- Exposure to disinfectants or germicides at project facilities, businesses, public spaces, and households;
- Potential injury or illness to workers from other physical and chemical hazards during construction, laboratory research, healthcare delivery, waste handling, and production at small and medium Enterprise (SME) facilities;
- Exposure to chemical products used in fumigation of food commodities;
- Chronic or acute effects to workers from accidental or unprotected exposure to toxic chemicals and wastes in laboratories or support to healthcare facilities;
- Chronic or acute effects to the community by exposure to expired or unusable commodities related to healthcare wastes accessed through scavenging or inappropriate disposal.

Potential environmental impacts:

- Pollution of land and water resources from the discharge or accidental introduction of pharmaceutical and other hazardous waste into the environment;
- Mortality and chronic effects on non-target organisms in the environment from exposure to disinfectants, and their wastes from release, directly or indirectly, to the environment, during ULV fogging and surface cleaning; and,
- Contamination of groundwater and surface waters, and land resources from improper management of solid waste and wastewater discharge during SME production, small scale construction, and from poorly designed water supply and sanitation systems.

The potential environmental impacts of the activity types addressed in this COVID-19 PIEE are described in detail in Annex 1 and provide a preliminary analysis to be referenced in an IEE Amendment.

4.0 ENVIRONMENTAL DETERMINATIONS

4.1 Recommended Environmental Determinations

A **Negative Determination with Conditions** is recommended for all activity types implemented in response to COVID-19. No categorical exclusions are applicable to this activity because the implementation of all activities, including those that would typically qualify for a Categorical Exclusion, may present the risk of COVID-19 transmission. The implementation of all activities may result in workplace exposure and transmission if precautions are not taken.

Pursuant to 22 CFR 216.2(b)(1)(ii), the COVID-19 response activities covered herein do not qualify for an exemption from environmental examination without Assistant Administrator or Administrator clearance and Council on Environmental Quality consultation. The purpose of this document is to ensure an exemption will not be necessary for any RFS activity related to COVID-19.

4.1 Climate Risk Management

Climate Risk Management (CRM) aims to assess, address, and adaptively manage climate risks that may impact the ability of USAID programs to achieve objectives. Reducing climate risks to project or activity implementation can improve development outcomes. Agency requirements for CRM for projects and

activities are described in Climate Risk Management for USAID Projects and Activities Mandatory Reference for ADS Chapter 201.

Climate and weather shocks and stressors can cause direct and indirect negative impacts to human health, such as heat waves leading to increased heat related illness, changing temperatures and rainfall patterns changing the distribution of infectious diseases. These impacts may magnify the severity of COVID-19. Furthermore, climate and weather shocks and stressors may also weaken health systems, and these systems' ability to respond to COVID-19. The most vulnerable populations are usually the most impacted by climate and weather shocks and stressors, potentially putting more people at risk of serious illness due to COVID-19.

While it is still unknown how climate and weather impacts COVID-19 transmission, and more evidence is needed for decision making, there is some evidence to suggest that high temperatures and humidity may reduce the transmission of COVID-19.

RFS projects which are involved COVID-19 activity or are receiving COVID-19 related funding, may be covered under the following CRM screening table. For projects with low risk or with only accepted risks should be covered by the CRM in this document, and no further CRM screening is required.
If the intended intervention is identified as moderate or high risk, further CRM screening may be required, as outlined in Climate Risk Management for USAID Projects and Activities Mandatory Reference for ADS Chapter 201.

CRM Table for COVID-19 Programmatic IEE*

*** (This screening was completed without certainty of what COVID-19 funds will be used for. Activities not included herein may require additional analysis.)**

Intervention Type	Climate Risks	Risk Rating	How Risks are Addressed in Strategy or by Programs	Next Steps	Accepted Risks and Opportunities
Activity Type 1 — Communication, outreach, analysis, planning.	Travel for training, capacity building, or other activities is interrupted due to extreme weather events. Resources or government attention and response is shifted away from covid-19 related-activities due to direct impacts of extreme weather events. Infrastructure used for trainings, IT, research, etc. damaged by extreme weather events.	Low	Not applicable for low risk activities.	When planning trainings and similar activities, consider seasonal forecasts and rainy seasons when choosing dates, and use contingency planning and consider virtual trainings as options. Consider including content on how climate and weather impact health issues in relevant trainings.	An **opportunity** is to integrate climate and weather into support for disease surveillance, disease reporting, and information dissemination. An **opportunity** is to integrate how the environment and climate contribute to pandemics and infectious disease occurrence during trainings. An **accepted risk** is that infrastructure may be damaged by extreme weather events where trainings, research, IT, etc occur.
	In some cases, gradual changes in climate, or extreme weather events, will impact where diseases occur, impacting where surveillance should occur.	Moderate in some countries and regions.	Programs that address climate and weather sensitive diseases should consider conducting surveillance on the periphery of disease ranges, or where diseases may spread due to change in weather or climate.	Conduct climate risk management for new projects and activities that have moderate or high risks, and risks aren't accepted.	
Activity Type 2 — Laboratory or research strengthening	Travel for training, capacity building, or other activities is interrupted due to extreme	Low	Not applicable for low risk activities.	When planning trainings and similar activities, consider seasonal forecasts and rainy seasons when choosing dates,	An **opportunity** is to include weather and climate impacts on disease occurrence while conducting laboratory

	weather events. Resources or government attention and response is shifted away from activities due to direct impacts of extreme weather events. Infrastructure used for trainings, IT, research, etc. damaged by extreme weather events.			and use contingency planning and consider virtual trainings as options. Work with the government to be more reactive and flexible during extreme weather events, such as droughts and floods.	research.
Activity Type 3 – Support for facilities and systems	Supply chain distribution interrupted due to extreme climate or weather events. Extreme climate and weather events leading to more demand for services. If construction is planned, then potential damage to construction due to climate shocks.	Moderate	If construction is included that requires a design team or engineer, then construction activities should consider climate risks during the design phase, and be approved by relevant design engineers or firms.	Conduct climate risk management for new projects and activities that have moderate or high risks, and risks that are not accepted. Logistic and supply chain delivery plans and teams should consider alternative routes, be adaptive, and both plan ahead and be prepared for extreme climate and weather events both increasing demand, and interrupting supply chain delivery.	While potentially likely in some areas, supply chain disruption, and supply demand increase, due to extreme climate and weather events is an **accepted risk in many instances**. Delivery and logistic teams should consider climate and weather as best as possible as highlighted in previous columns.
Activity Type 4 – Use of disinfectants or germicides	Both long term climate change and climate shocks lead to direct or indirect impacts that increase populations vulnerability. For example, heat waves may decrease the		Not known.	Conduct climate risk management for new projects and activities that have moderate or high risks, and risks that are not accepted.	While potentially likely in some areas, supply chain disruption, and supply demand increase, due to extreme climate and weather events may be an **accepted risk in**

	immune systems in some locations and populations. Or, rainfall patterns and increased temperatures could increase occurrence of other, non-COVID diseases. Supply chain distribution interrupted due to extreme climate or weather events. Extreme climate and weather events leading to more demand for services.			Decisions should focus on targeting the most vulnerable populations first and consider where distribution of materials will have the most impact. Logistic and supply chain delivery plans and teams should consider alternative routes, be adaptive, and both plan ahead and be prepared for extreme climate and weather events both increasing demand, and interrupting supply chain delivery.	**some instances**. Delivery and logistic teams should consider climate and weather as best as possible as highlighted in previous columns.
Activity Type 5 - Water, Sanitation, and Hygiene (WASH) related activities.	Water quantity and quality are negatively impacted by changes in rainfall patterns, increases in evapotranspiration due to high temperatures, or extreme weather events such as floods and drought. Service delivery disrupted due to extreme weather or climate events. If construction is planned, then potential damage to construction due to climate shocks.	Moderate	If construction is included that requires a design team or engineer, then construction activities must consider climate risks during the design phase, and be approved by relevant design engineers or firms.	Conduct climate risk management for new projects and activities that have moderate or high risks, and risks that are not accepted. Consider including watershed management to improve WASH outcomes. Each WASH related project/country/program will have unique climate and water related challenges. These should be considered during design, solicitation development, or work plan development, depending on the stage of the program cycle	Service delivery disrupted due to extreme weather or climate is an **accepted risk** and no further risk mitigation measures are required, unless the operating unit chooses to do so.

				the program is in.	
Activity Type 6 – Food Security	Increased flooding or changes in rainfall patterns increases the likelihood that fumigation enters water sources. Emergency food delivery disrupted due to extreme weather. Storage of food or supplies damaged during floods or with increased humidity. Climate shocks (i.e. extreme weather) or stressors (i.e. increased temperatures over time) negatively impacting crop yields and agribusiness throughout the value chain.	Moderate	Consider the rainy season and weather forecasts when deciding when to apply fumigation. For longer term storage, consider rainfall patterns, and risk of flood. For longer term projects using COVID-19 funds that directly work on value chains, consider how the value chain is impacted by climate shocks and stressors during project design.	Conduct climate risk management for new projects and activities that have moderate high risks, and risks that are not accepted.	Implementing partners and USAID are encouraged to consider extreme weather during emergency food delivery, however, food delivery disrupted due to extreme weather **can be an accepted risk** for short term disaster assistance.
	More fumigation required in the case of increased humidity.	Low	Not applicable for low risk activities.	Not applicable for low risk activities.	
Activity Type 7 - Small Scale Construction and Rehabilitation	Climate shocks, such as floods, damaging construction. Increased temperatures and heat waves decreasing the functionality of new construction.	Moderate /high	If construction is included that requires a design team or engineer, then construction activities must consider climate risks during the design phase and be approved by relevant design engineers or firms.	If construction is included that requires a design team or engineer, then construction activities should consider climate risks during the design phase and be approved by relevant design engineers or firms.	

Activity Type 8 - Small and Medium Enterprises in Support of COVID-19 Response	Travel for training, capacity building, or other activities is interrupted due to extreme weather events. Resources or government attention and response is shifted away from activities due to direct impacts of extreme weather events.	Low	Not applicable for low risk activities.	When planning trainings and similar activities, consider seasonal forecasts and rainy seasons when choosing dates, and use contingency planning and consider virtual trainings as options. Consider including content on how climate and weather impact health issues in relevant trainings.	An **opportunity** is to integrate how the environment and climate contribute to pandemics and infectious disease occurrence during trainings.

5.0 CONDITIONS AND MITIGATION MEASURES

5.1 CONDITIONS

The environmental determinations in this COVID-19 PIEE are contingent upon full implementation of the following general implementation and monitoring requirements, as well as ADS 204 and other relevant requirements.

- With the assistance of the RFS BEO, USAID/RFS OUs will operationalize this COVID-19 PIEE through the development of a simple IEE Amendment (or new IEE) for RFS project-specific COVID-19 response activities.
- This PIEE provides a preliminary analysis of environmental impacts and recommends a range of risk mitigation measures (summarized in Section 3 and 5 and detailed in Annex 1 and 2). With reference to this COVID-19 PIEE, the IEE Amendment prepared by RFS OUs will direct their partners to develop and implement an EMMP based on these activity-specific measures.

General Conditions Recommended for COVID-19 IEE Amendments

Activities should at a minimum address the following conditions:

- Interventions must build awareness, providing and requiring training and capacity building around best environmental and health and safety practices in the context of the COVID-19 pandemic;
- Follow Agency and international guidelines for COVID-19 response (see Section 2.2 for examples);
- Ensure access to technical expertise for implementing sound environmental and health and safety practices for COVID-19 response activities;
- Comply with relevant host country and international standards and regulations;
- Develop and implement EMMPs and planning documents for actions with potential direct environmental impacts.

Specific Conditions for Activities that Procure or Use Disinfectants or Germicides

One essential set of tools in the global response to the COVID-19 pandemic is disinfectants. This COVID-19 PIEE provides guidance on the selection and proper use of disinfectants or germicides in Annexes 3 and 4, and in Quick Reference 1, as described below. All RFS projects may also consult local government authorities and public health leadership as appropriate.

ANNEX 3. APPROVED DISINFECTANTS AND PESTICIDE PROCEDURES ANALYSIS

This annex summarizes the information that should guide USAID and its partners in selecting disinfectants for different uses and in different settings. This annex also completes a mandatory detailed analysis of the use of disinfectants in response to the Agency's Pesticide Procedures, which can be referenced in the IEE Amendment by each operating unit.

ANNEX 4: PRACTICAL GUIDANCE FOR USE OF DISINFECTANTS

This annex provides resources for the safe use of disinfectants, including specific practices related to COVID-19. Since information and best practices are still evolving, users should frequently visit websites for updates and maintain contact with their local health authorities.

Quick Reference: Information on COVID-19 behaviors and disinfectants or germicides to control COVID-19. See Annexes 3 and 4 for more details and references.

General Communications and Disease Prevention

Practical communications on **infection prevention and control** are frequently updated and can be found at:

CDC: How to Protect Yourself

WHO Getting your Workplace Ready for COVID-19

WHO Risk Communication and Community Engagement

An excellent quick **reference for PPE use** under numerous exposure scenarios (e.g., healthcare workers, waste handlers, and the general community, among others) can be found in Table 1 of the WHO Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19).

In addition, guidance on Agency procurement of PPE:
https://pages.usaid.gov/system/files/guidance_for_personal_protective_equipment_ppe_requests_for_2019_novel_coronavirus_outbreak.pdf

Disinfectant or Germicide Use

In most scenarios, the use of disinfectants recommended for combating COVID-19 are considered pesticides for the purposes of USAID's Pesticide Procedures. This PIEE provides coverage for RFS OUs to meet the requirements of the USAID Pesticide Procedures, more commonly known as the "Pesticide Evaluation Report -PER" when using the disinfectants specified in Annex 3.

***Soap and water with vigorous scrubbing for at least 20 seconds has been shown to be effective for hand hygiene, laundry, and soft surfaces. For general cleaning, soap and water is an excellent option and exempt from the Pesticide Procedures.**

When chemical cleaning alternatives are needed, an abbreviated list of disinfectant products (see Annex 3 for full list) approved for general use and commonly available include:

- Household Chlorine Bleach– commercially available bleach solutions typically are at a concentration of 5.25% and must be diluted by 1 part bleach to 9 parts water (Note: the concentration of bleach can range from 2-12%, so check the label and adjust the bleach-to-water ratio accordingly.)
- Hydrogen Peroxide (3%-6%)
- Alcohols for surfaces, including isopropyl, ethanol (70-75%)
- Alcohols for hand sanitizer - mix ~160 ml of 160 proof grain alcohol or 99% isopropyl alcohol with ~80 ml aloe vera (typically a moisturizer such as aloe vera is added when used on skin to prevent drying and sensitivity)

See the EPA list of approved cleaning products for COVID-19 for comparison of active ingredients and concentrations against local products for acids (e.g., citric, lactic, octanic, glycolic), ammonia, and chlorine.

Important Instructions:

- Always follow product instructions.
- Use PPE appropriate for the product (most commonly eye protection and gloves).
- Consider the surface type to ensure effectiveness and avoid unintentional damage.
- Clean soiled surfaces with soap and water before using a disinfectant.
- Confirm the concentration of the purchased product and how to dilute to achieve proper concentration for disinfection.
- Consider contact time based on product instructions. Contact time to be effective typically varies from 30 seconds to 10 minutes.

Cautions and Advice:

- Ensure you have a product effective against viruses. Those effective against bacteria may not always combat viruses.
- Always select labelled products and follow the instructions.
- Avoid mixing disinfectant products as some mixtures can be dangerous.
- When diluting, add the disinfectant product to water, not water to the product.
- Freshly prepare solutions when possible.

Always dispose of empty containers by triple rinsing, puncturing, and disposing in an appropriate

ANNEX 1. ILLUSTRATIVE ENVIRONMENTAL IMPACTS OF ACTIVITIES

Activity	Potential environmental and social impacts
Activity 1 Communications, outreach, analysis, planning, and other actions that typically have minimal if any impact on the environment	
No categorical exclusions are recommended for this category because the implementation of activities that would typically qualify for a Categorical Exclusion may present the risk of COVID-19 transmission. For example, the implementation of a communication activity would tend to congregate people and potentially increase the risk of exposure and transmission. Indirect social impacts are also possible depending on the methodology and approach implemented for data collection and surveillance. Illustrative examples include: ● Transmission between workers and the community if health and safety protocols (e.g., social distancing and hygiene behaviors) are not followed. ● Social unrest or physical harm to data collectors in locations where public sensitization has not previously taken place or public misinformation results in fear of outsiders (as witnessed during the Ebola crisis). ● Exposure to inappropriately discarded waste contaminated with COVID-19.	
Activity 2 — Laboratory or research strengthening	
2.1 Support or provide technical assistance to **develop processes, SOPs, and standards** for specimen transport, laboratory diagnostics, and services	These actions primarily involve research, analyses, and information sharing actions that have no direct physical impact on the environment; however, if these activities are not cognizant of the environmental impact associated with carrying out the SOPs or standards, localized environmental harm (spread of pathogens, air pollution, contamination of soil and water) is possible due to inappropriate waste management, treatment of specimens that create disease transmission pathways to the community or workers, spills or occurrence of accidents.
2.2 **Training, technical assistance, and capacity building** of professional and paraprofessionals on laboratory establishment and/or operation, including training workers in methods for PPE use, diagnostics, and waste management	a) Laboratories carry both environmental and human health and safety risks to the local community and workers. Training, technical assistance, and capacity building can directly lead to generation of wastes during the training events and demonstrations. Indirectly, the support as it is instructional in nature, can also lead to environmental or health and safety impacts once the training is complete (e.g., they lead directly to how staff manage wastes). Incorrect PPE use, sample acquisition, handling, storage and management of healthcare waste can spread the disease through several mechanisms. Transmission of disease through infectious waste and environmental risks of used test kits and reagents are the greatest and most immediate threat. Impacts related to waste management are addressed in Sub Activity 2.3. b) Additionally, the provision of potable water to laboratories, if not properly treated, can also result in the discharge of

	pathogens or chemicals into groundwater and surface water. See Sub Activity 5.3 if support extends to laboratory water systems.
2.3 **Operation of a laboratory** including all critical components such as procurement, storage, management, and disposal of laboratory commodities and samples, including, but not limited to diagnostic kits, laboratory supplies, reagents, and discarded PPE	a) Negative environmental impacts associated with laboratory testing, operation, and research include the use of hazardous and toxic chemicals and result in the generation of various solid and hazardous wastes, including chemical and biological wastes. Air emissions resulting from laboratory operations may generate hazardous air pollutants that can be harmful to human health and the environment. In addition, water used during laboratory research may become contaminated and require control or treatment prior to discharge to avoid contamination of the facility water system as well as the local community water system. Cleaning in the laboratory may generate hazardous or chemical wastes requiring neutralization or special treatment (e.g., bleaches, organic solvents, soaps) prior to discharge to a local sewer system or to the environment. b) There are also environmental risks associated with the storage and disposal of commodities, reagents, and laboratory supplies. Unused or untested commodities may also require disposal, treatment, or storage. c) Health and safety standards are also important to consider at laboratories as workers may contact hazardous chemicals, which could be neurotoxic, carcinogenic, acutely toxic, or genotoxic, etc. Additionally, laboratory workers and waste workers can be exposed to hazards from equipment operation, the use of syringes, cleaning up broken glassware and exposure to pathogens in patient samples.
2.4 Contribution to **research of vaccine and treatment protocol development**	USAID may contribute to, or be a minor donor to, vaccine or treatment development and upscaling. Research in WHO and/or ISO certified laboratories will contribute to the overall waste burden. However, it is expected that these certified facilities will properly manage waste and prevent discharge of pathogens or chemicals to the environment. Vaccine development carries unknown environmental and social risks.
Activity 3 – Support for facilities and systems	
3.1 Support or provide technical assistance to **develop processes, SOPs, and standards** for aspects of waste management, disinfection, and service delivery	These actions primarily involve research, analyses, and information sharing actions that have no direct physical impact on the environment; however, if these activities are not cognizant of the environmental impact associated with carrying out the SOPs or standards, localized environmental harm (spread of pathogens, air pollution, contamination of

	soil and water) is possible due to inappropriate waste management, spills or occurrence of accidents.
3.2 **Training, technical assistance, and capacity building of workers, waste workers, staff, and volunteers** in areas of PPE use, waste management, procurement, storage, and disposal of commodities, and disinfection	Support for various facilities may carries both environmental and human health and safety risks to the local community and workers. Training, technical assistance, and capacity building can directly lead to generation of wastes during the training events and demonstrations. Indirectly, the support as it is instructional in nature, can also lead to environmental or health and safety impacts once the training is complete (e.g., they lead directly to how staff manage wastes). Incorrect PPE use, sample acquisition, handling, storage and management of healthcare waste can spread the disease through several mechanisms. Impacts related to waste management are addressed in Sub-activity 3.3.
3.3 Procurement or logistics support (distribution and transport) for commodities, PPE, and equipment for response to emerging threats	a) Procurement and logistics support of commodities can have environmental and social impacts associated with the management of expiring, damaged, or oversupply of commodities. More specifically, - Inappropriate supply or lack of adherence to established supply management protocols (e.g., first in first out) may result in increased waste. - An oversupply of some commodities increases the probability of products expiring on the shelf and requiring disposal or containment. Damaged and expired materials create a waste stream that may include potentially hazardous waste along with its associated environmental impacts. -The management of large quantities of supplies also creates greater potential for diversion during waste handling or by theft of the commodities, which then poses a risk to the local community. - Procurement or acceptance of donated commodities that are defective, expired, or counterfeit may lead to public health impacts due to the potential of these unsafe and/or ineffective commodities to be accessed by consumers. Adverse health and environmental impacts may also occur if defective, expired, or counterfeit commodities are not properly managed. b) The production of the commodity, its packaging, and the shipping can result in plastic and chemical waste. c) Production of commodities may require significant energy and water use, which contribute to the overall environmental footprint of the product. d) Production and shipping can also contribute to greenhouse gas (GHG) emissions as well as waste management including incinerator use and emissions from landfills.
3.4 Assessment of waste disposal capacity to ensure	Assessments do not directly have environmental or health impacts; however, recommendations arising from those assessments, can result in environmental harm when

proper disposal and limit vectors of disease via improperly managed waste;	inappropriate. As noted in Sub-activities 3.2 and 3.3, there are health and soil, water, and air pollution risks from inappropriate waste management.
3.5 Procurement, distribution, and use of **waste management equipment and systems**	a) Improper handling, storage and disposal of waste can spread disease through several mechanisms. Waste management is important in mitigating risk, but waste management in its procedures, equipment operation, and maintenance has its own associated risks. b) Waste management is often impaired incomplete or ineffective removal. c) Disposal of waste via landfilling may lead to leaching of hazardous waste into the soil and surrounding water sources. In addition, at improperly managed or unsecured landfills, scavengers may collect disposed materials and reuse them or circulate them in the community, which could result in health impacts. d) Waste handlers are particularly at risk as they have exposure to possible punctures and other breaks in the skin, mucous membranes in the mouth, by being inhaled into the lungs, being swallowed, or being transmitted by a vector organism. Handlers who maintain incinerators or other furnace equipment may be exposed to ash which can contain heavy metals and PAHs. Other workers, including cleaning staff, waste collectors, disposal site staff, and waste pickers, who come in direct contact with the waste are also at risk.
Activity 4 - Support for the use of disinfectants or germicides* **for the purposes of COVID-19, disinfectants and germicides are used interchangeably here as chemicals for destruction of viral pathogens*	
4.1 Procurement, distribution, training, and use of **disinfectants or germicides on surfaces** (for ultra low volume [ULV] spraying and fogging and air disinfection see 4.2) -in community setting -in health facilities -in private homes -in offices and business -in public spaces	Environmental and health risks of using disinfectants or germicides are dependent on the specific type used, method of application, and target, among numerous other factors. In the community setting, applicators may be less knowledgeable of the risks, the appropriate preparation (e.g., dilution), contact time, and which product to apply to which surfaces. Additionally, they may inappropriately apply the disinfectant (e.g., by not adhering to contact time requirements). Because specific risks cannot be identified here, a very general review of the risks associated with disinfectant use is presented below. a) **Occupational and public exposure risks.** The use of disinfectants may increase their risk of developing respiratory

	illnesses (e.g., asthma) and contact dermatitis, especially when engineering controls (e.g., closed containers, adequate ventilation) and PPE (e.g., gloves) are not used. b) **Risks inherent to making homemade products.** Where manufacturer products are not available, homemade disinfectants are sometimes prepared. Improper use of chemicals may cause allergic reactions and dermatitis. Mixing certain products, such as cleaning materials that contain ammonia and chlorine, may form a deadly gas. Some chemicals are irritating to eyes and to the respiratory system. Certain chemical disinfectants are flammable and explosive. c) **Risk of counterfeit, illegal, or inappropriately applied technologies.** During emergencies, counterfeit, illegal and inappropriate technologies are often found on the market as opportunists attempt to profit from fear of the disease. Already with COVID-19, this has become a problem. Products that are not sanctioned by authorities have the risk of being ineffective, inappropriately marked, adulterated with other chemicals, or be dangerous. For example, home ozone devices generate poisonous and carcinogenic particles. d) **Ineffective treatment risk.** Pathogens can be ineffectively treated if an inappropriate product is used (i.e., pathogens are intrinsically resistant), if the product is improperly applied (i.e., incorrect duration, concentration, pH, temperature), if inorganic debris is not removed (i.e., improper cleaning) prior to disinfection, if insufficient time is provided for contact of the disinfectant with the surface to be treated, and if there is an insufficient concentration of active product. e) **Environmental risks.** Disinfectants are selected for their toxic properties and therefore may harm beneficial microorganisms, plant and animal life. Certain chemicals can contribute to pollution of air, water and soil and may persist and bioaccumulate during their manufacture, use, or disposal.
4.2 Procurement, distribution, training, and use of **ULV spraying or fogging and air disinfection** -in community setting -in health facilities -in private homes -in offices and business -in public spaces	a) Ultra low volume (ULV) spraying and fogging in public spaces, including city streets, public transportation, schools, community buildings, mosques and churches, is typically conducted using ultra-low concentrations of sodium hypochlorite (dilute bleach); however, the active ingredient used may vary depending on the type of pathogen and availability of chemicals. The environmental and health risks associated with disinfectants are dependent on the specific product used, method of application, and target, among numerous other factors. Because specific risks cannot be

*ULV and air disinfection requires special equipment that produces small droplets or vapor.	identified, Sub-Activity 4.1 includes a very general review of associated risk. b) ULV spraying in particular can pose a respiratory threat to workers conducting spraying operations, and to certain sensitive populations, specifically those with an existing respiratory illness. Some skin sensitivity may also be possible in the general population.
4.3 Research and introduction of **new** disinfection/ sterilization technologies (e.g., UV, vaporized hydrogen peroxide, ozone, no-touch room disinfection)	Technology development in the medical sector is rapid and the scaling of the technologies can quickly bring them to use by professionals. Environmental impacts and the health and safety risks depend on the technology. Some, if inappropriately used, can be extremely dangerous because they produce poisonous gases that can damage the environment and be harmful to workers, patients, and the environment. Further, the choice of a technology that is ineffective can result in spreading disease or can contribute to resistance to disinfection/sterilization practices. Particularly with viral disease like COVID-19, there is also a lack of understanding about what treatments are effective against viruses and which are effective against bacteria.
Activity 5 – WASH (see Activity 7 for construction of latrines)	
5.1 Distribute **WASH supplies to households**	The provision of soap, hygiene kits and other WASH supplies, generate solid waste, but generally pose minimal impact to the environment. However, the distribution of water treatment supplies, such as chlorine tablets, may pose a greater potential risk. Undertreatment of drinking water supplies with chlorine tablets may contribute to disease transmission if the water is perceived safe. Overtreatment could result in gastrointestinal issues and dermatitis in humans and localized mortality events of aquatic invertebrates and fish.
5.2 Supply drinking water via installation or provision of **household point of use (POU) treatment systems** (see 5.1 for chlorine tablets, e.g., aquatabs)	Point of use (POU) water treatment is a short-term measure to provide safe drinking water until a longer-term solution is available. POU treatment presents strong benefits if required treatment levels and procedures are followed. Health risks related to excessive dosing of water are minimal; Under-treatment and re-contamination (most likely to occur during transportation or storage) may render the POU treatment ineffective.
5.3 **Technical assistance** for the design and implementation	Poor design, operation, or maintenance of water supply and sanitation systems can have negative indirect impacts on the environment as noted below.

of supplemental water supply and sanitation facilities	Potential adverse impacts from water supply activities: ● Depletion of freshwater resources (surface and groundwater) ● Degradation of the quality of potable water sources (surface and groundwater) ● Creation of stagnant (standing) water ● Degradation of terrestrial, aquatic, and coastal habitats ● Human health risks from a water source that becomes biologically or chemically contaminated. Potential adverse impacts from sanitation activities: ● Increased human health risks from contamination of surface water, groundwater, soil, and food by excreta, chemicals and pathogens ● Ecological harm from degradation of stream, lake, estuarine and marine water quality and degradation of terrestrial habitats.
Activity 6 – Food Security	
6.1 Procurement and distribution of food commodities 6.2 Safe handling of food commodities	a) Provision of food commodities can increase the amount of solid waste where the food is distributed. Inappropriately planned interventions can disrupt the local food supply chain and potentially lower the income of farmers and local food markets. b) Inefficient supply chains can lead to food spoilage and increased waste if not properly managed. Providing food that is not palatable to the local communities may also result in waste. c) Food distribution points, in outbreak situations, can potentially transmit pathogens, or facilitate community transmission by assembling large groups. d) Depending on the mode of transportation, distribution can lead to increased GHG emissions, traffic, and noise pollution. e) Risk of conflict among social groups due to inequitable access to, and/or inequitable distribution of food commodities.
6.3 Fumigation of food commodities	Fumigation uses potentially hazardous chemicals, of which the impacts may include: ● Negative health impacts to applicators and on-site workers and visitors (including transporters)

	● Negative health impacts of residents near fumigation sites ● Negative impacts to water quality, soil and non-target organisms if fumigant disperses from the site ● Negative health impacts due to poor solid waste management (such as improper disposal of dead birds and rodents killed by fumigants) of fumigation residues/byproducts ● Need for ancillary treatment of fungal diseases if the fumigant (e.g. phosphine) is not effective in the control of fungal contamination
Activity 7 - Small Scale Construction and Rehabilitation, such as construction, rehabilitation and expansion of laboratories, temporary shelters, and latrines.	
7.1 Refurbishment/rehabilitation	Environmental impacts from small-scale construction and rehabilitation may include: ● Generation of solid waste and potential for soil and groundwater contamination, ● Improper siting, site grading, drainage, and lack of erosion control can compromise waterways, water sources, and sensitive areas ● Potential for air pollution (both indoor and outdoor), noise pollution, traffic, congestion, odor, and visual quality impacts ● Socioeconomic impacts ● Occupational and public health and safety impacts include: exposure to asbestos, lead, VOCs, spills, construction accidents ● Resource depletion and indirect impacts from energy and water use
7.2 Construction of latrines 7.3 Construction of boreholes or water systems	a) Construction of water supply and sanitation infrastructure in or near sensitive areas like wetlands or estuaries can destroy flora, fauna, and/or their habitats, leading to losses in biodiversity and ecosystem functioning. It can also cause reductions in ecosystem services such as regulation of water flows and water quality, non-consumptive use (for generating power and transport/navigation, aesthetics, and recreational value). b) Soil erosion of exposed soils during construction can cause sedimentation into nearby water bodies, reducing the hydraulic capacity and water quality of surface water, and increasing risk of flooding and biodiversity loss.
7.4 Connecting to existing utilities (water, electricity)	In connecting to existing utilities, it is possible that the need for the construction/rehabilitation will be greater than that supplied by the system. In these cases, the utility may divert

	resources from the community or be cost prohibitive to continue to operate the facility after handover.
7.5 Backup energy generation	Backup energy generation is often through utilization of diesel generation. Diesel generators are costly and also produce significant air emissions.
7.6 Installation of temporary units (offices, mobile supply warehouses, other facilities)	The construction of temporary units have similar impacts to those of general construction noted above, but the above risks are heightened due to (1) the higher likelihood that infectious diseases that may be present in human excreta, (2) the vulnerability of patient populations to poor environmental health conditions, and (3) the particular hazards of construction waste. Failure to provide infrastructure for appropriate management of waste in facility construction of rehabilitation, and failure to observe appropriate design standards for sanitation provision can have significant, adverse consequences.
Activity 8 - Small and medium enterprises (SMEs) in support of COVID-19 response	
Training, capacity building, small grants, technical assistance and purchase of equipment of supplies for small and medium scale enterprises (SMEs). Illustrative new SMEs responding to COVID-19 may include, but are not limited to, those who provide: -PPE production -Sanitizer production -Delivery services -Technology development -Use of UAVs to deliver samples/productspestic	a) SMEs can cause significant environmental and related public health difficulties, which vary as broadly as the types of enterprises. SMEs can be more pollution-intensive than larger enterprises (per unit of production). When they are numerous and/or concentrated in particular areas, they can create environmental problems of alarming proportions. b) The adverse environmental impacts of SMEs can impose heavy social and economic burdens on their communities—degrading the ecosystem and food sources, undermining the health of neighbors and workers, and consuming fuel and resources beyond the point of renewability. These burdens in turn place significant costs upon not only the culpable SMEs but also other businesses—such as costs of procuring fuel, and costs of lost worker productivity due to sickness or injury. Environmental Problems caused by SMEs include: • Chemical and hazardous waste • Air pollution and particulate dust • Water pollution • Soil erosion • Natural resource depletion • Solid waste

	• Odor • Noise • Health and safety risks Many decisions made by SMEs have the potential to harm the environment and public health. Specific examples include: • Location decisions • Purchasing decisions • Processing/manufacturing decisions • Housekeeping decisions • Waste disposal decisions c) Overall, adverse impacts are often caused by poor practices that go uncorrected because operators don't have the right technical information. Insufficient knowledge can lead to improper use of chemicals, inadequate treatment or disposal of solid and liquid waste, uncontrolled chemical air pollution, and production techniques that make intensive use of nonrenewable resources. Health and safety problems, in particular, are compounded by ignorance of industrial safety and environmental standards, as well as by lack of awareness of protective devices that are generally inexpensive and easy to obtain.

ANNEX 2. ILLUSTRATIVE MITIGATION MEASURES (FOR USE IN IEE AMENDMENTS)

This table provides illustrative mitigation measures for a range of activities and sub-activities that may be included in COVID-19 responses. As appropriate, they should be integrated into IEE Amendments and their accompanying EMMPs. Available resources are provided for use as a supplementary reference where appropriate; however, contractual/agreement obligations and direction of the A/COR take precedence. It is highly encouraged that websites are revisited regularly as information if quickly evolving.

Activity/Sub-Activity	Mitigation Measures
Activity 1 – Communications, outreach, analysis, planning	
a) Seek to be informed about ways to prevent COVID-19 transmission over the course of the activities, including where appropriate, training staff and beneficiaries on social distancing, PPE use, and disinfection. Guidance can be found from local authorities or at the following websites: • CDC's Coronavirus Disease Site: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html • WHO Getting your Workplace Ready for COVID-19: https://www.who.int/docs/default-source/coronaviruse/getting-workplace-ready-for-covid-19.pdf?sfvrsn=359a81e7_6 • UNICEF, WHO, IRCF Key Messages and Actions for COVID-19 Prevention and Control in Schools https://www.who.int/docs/default-source/coronaviruse/key-messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52_4 b) Where appropriate and available, remote training and other non-face to face communications should be utilized when possible until the risk of infection passes. c) Follow local COVID-19 regulations on the size of gatherings and travel advisories.. d) Staff should be offered options for teleworking and/or opting out of activities. These options should be provided to all staff who feel that these activities may put them at higher risk of infection, especially those that are particularly at risk (e.g., immunocompromised, those with respiratory infections, older adults). See CDCs' People who Need Extra Precautions: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fspecific-groups%2Fpeople-at-higher-risk.html e) Additional references for special considerations and guidance for marginalized and vulnerable population can be found at: WHO Humanitarian Operations, Camps, and other Fragile Settings https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/humanitarian-operations-camps-and-other-fragile-settings	
Activity 2 — Laboratory or research strengthening	
2.1 Support or provide technical assistance to **develop processes, SOPs, and standards** for specimen transport,	a) Use of host country developed processes, standard operating procedures (SOPs) and standards should be promoted; however, these processes must be assessed to evaluate whether they adequately address potential health and safety and environmental impacts of the operation of laboratory and diagnostic services and generated wastes.

laboratory diagnostics, and services	b) When gaps exist, ensure the development and promotion of implementation of the SOPs/EHS manuals in accordance with best management practices. Consider the following elements in developing the SOPs/EHS manuals: ● **Storage-** ambient conditions (e.g., temperature or humidity), security, stock inventory and records, fire control, and waste management. ● **Safety-** safe practices for laboratory workers such as proper use of PPE and training in infection control to reduce potential transmittal of disease from samples. c) When adequate **waste management procedures** are not available, develop and implement a Waste Management Plan (WMP) that addresses management of waste streams associated with laboratory operations. USAID provides guidance on WMPs at: https://www.usaid.gov/documents/1865/integrated-waste-management-plan-iwmp. Refer to the following documents for guidance on COVID-19 when developing a laboratory EHS Manual: ● WHO. Laboratory Biosafety Manual- Third Edition (2004) ● WHO Coronavirus Technical Guidance. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance The recommended components of the EHS Manual include: ● Chemical hygiene plan ● Safety Data Sheets (SDS) for chemicals used in the lab ● Use of appropriate personal protective equipment (PPE) ● Inspection and permit records ● Integrated Waste Management Plan, if applicable ● Spill prevention plan ● Injury and illness prevention plan ● Training requirements and records
2.2 **Training, technical assistance, and capacity building** of professional and paraprofessionals on **laboratory establishment**	**Training, curricula development, or supervision** activities that potentially create waste must address appropriate best management practices concerning the proper management of laboratory waste, sample handling and disposal, and the use of

and/or operation, including training workers in methods for PPE use, diagnostics, and waste management	PPE. Trainers must be equipped with PPE, as dictated by the type of training. **Training on waste management and PPE use** must be in accordance with the best standard of practice promoted by local authorities at the time of the training (or as developed per Sub Activity 2.1), but also note any standards that would have more complex expectations outside of emergency operations (e.g., barrel incineration may be practiced at the time of an outbreak, but the IP should discuss national standards in the training typically required outside of emergency operation, such as double-chambered incineration). See also the WHO Coronavirus Technical Guidance. Laboratory Guidance: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance
2.3 **Operation of a laboratory** including all critical components such as procurement, storage, management, and disposal of laboratory commodities and samples, including, but not limited to diagnostic kits, laboratory supplies, reagents, and discarded PPE	**General Operation.** a) For each laboratory supported, assess the existing laboratory SOPs/EHS manual to evaluate whether it adequately addresses potential health and safety and environmental impacts of the operation of laboratory and diagnostic services and their wastes. b) If no SOP/EHS manual exists or gaps are identified, develop and implement a laboratory SOP/EHS manual in accordance with best management practices, and submit to the A/COR. c) The staff must be trained and provided guidance materials for activities related to the SOPs/EHS manual. Recommended components of the SOPs/EHS Manual include: ● Chemical hygiene plan ● Safety Data Sheets (SDS) for chemicals used in the lab ● Use of appropriate personal protective equipment (PPE) ● Inspection and permit records ● Integrated Waste Management Plan, if applicable ● Spill prevention plan ● Injury and illness prevention plan ● Training requirements and records

	Refer to the following document for guidance when developing a laboratory EHS: ● EHS Manual: WHO. Laboratory Biosafety Manual- Third Edition (2004) ● WHO Coronavirus Technical Guidance. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance ● CDC Laboratory Biosafety Manual. https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety-guidelines.html **Waste Management.** When adequate waste management procedures are not available, after review of the laboratory SOPs/EHS manuals, develop and implement a waste management plan (WMP) that addresses management of waste streams associated with laboratory operations. USAID provides guidance on WMPs at: https://www.usaid.gov/documents/1865/integrated-waste-management-plan-iwmp. WMPs should address, as appropriate for the laboratory, the storage of wastes, containers and labeling, safe waste treatment and disposal practices and procedures, inspection protocols and frequency, and documentation requirements (e.g., waste manifests). Commodities which expire or are damaged are subject to all relevant requirements under the WMP. Refer to the following documents for guidance when developing a WMP: ● USAID. Integrated Waste Management Plan (WMP) (2019) ● USAID. Sectoral Environmental Guidelines for Solid Waste. (2018) **Sample or Supply Transport.** When IPs are responsible for transporting samples or supplies, develop and implement SOPs for the safe transport of samples and supplies being transported in bulk in motorized vehicles. Distribution considerations include but are not limited to: transport needs and availability, fleet management and monitoring, theft prevention procedures, accident and spill response, incident reporting, and vehicle maintenance.

	Refer to the following documents for guidance when developing SOPs: • WHO Guidance for laboratories shipping specimens to WHO reference laboratories that provide confirmatory testing for COVID-19 virus https://apps.who.int/iris/bitstream/handle/10665/331639/WHO-2019-nCoV-laboratory_shipment-2020.3-eng.pdf • CDC Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons for Coronavirus Disease 2019 https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html **Storage.** Develop and implement SOPs for the safe and effective storage of commodities and samples to reduce damage and/or early expiration. Storage considerations include, but are not limited to: storage ambient conditions (e.g., temperature or humidity), security, stock inventory and records, fire control, and waste management. **PPE Provision.** Where IPs are operating laboratories, they should support staff and facilities guidance and training for proper use and disposal of PPE appropriate to laboratory activities and waste handling as a result of those activities. When IPs are responsible for PPE provision, it should be provided in accordance with the best standard of practice achievable but strive to provide fully appropriate PPE as dictated by the services the laboratory is providing. Any substitutions or alternatives to PPE provision or use, made necessary by the emergency, should be documented in the regular reporting (e.g., utilizing scarves rather than respirators for respiratory protection). WHO currently recommends medical masks, gowns, gloves, and eye protection for workers handling laboratory samples: https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf
2.4 Contribution to **research of vaccine and treatment protocol development**	Where USAID is a minor donor to vaccine or treatment development, there are no associated mitigation measures. For trials involving human subjects, the IP may have a completed and approved Institutional Review Board (IRB) review with an attached

	study protocol, by the appropriate agency(ies), and provided to the RFS BEO PRIOR to initiation of trial with human subjects. The IRB review will be incorporated as an IEE attachment post-signature.
Activity 3 - Support for facilities and systems	
3.1 Support or provide technical assistance to **develop processes, SOPs, and standards** for aspects of waste management, disinfection, storage, and service delivery	See Conditions of Sub-activity 2.1.
3.2 **Training, technical assistance, and capacity building of staff, waste workers, and community volunteers** in areas of PPE use, waste management, procurement, storage, and disposal of commodities, and disinfection	**Training/curricula/supervision** that creates waste as part of the training must address appropriate best management practices concerning the proper management of potentially contaminated waste and PPE use. PPE must be provided to trainers, if dictated by the type of training. **Training on waste management, storage of commodities, disinfection, and PPE use** must be in accordance with the best standard of practice promoted by local authorities at the time of the training, but also note any standards that would have more complex expectations outside of emergency operations (e.g., barrel incineration may be practiced at the time of an outbreak, but the IP should discuss national standards in the training typically required outside of emergency operation, such as double-chambered incineration). PPE for staff and waste workers depends on the setting, personnel and type of activity. See WHO Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19): https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf References include: USAID Sector Environmental Guidelines for COVID-19 Waste (https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/sector-environmental-guidelines-resources#hw) for additional resources, particularly in the section titled, “Minimum elements of a complete waste management program WHO’s “Safe Management of Wastes from Healthcare Activities. CDC Guideline for Disinfection and Sterilization of Healthcare Facilities (2008). Updated May 2019.

	https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf CDC Strategies to Optimize the Supply of PPE and Equipment https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids https://www.cdc.gov/niosh/npptl/topics/protectiveclothing/ WHO Coronavirus disease (COVID-19) outbreak: rights,roles and responsibilities of health workers, including key considerations for occupational safety and health https://www.who.int/publications-detail/coronavirus-disease-(covid-19)-outbreak-rights-roles-and-responsibilities-of-health-workers-including-key-considerations-for-occupational-safety-and-health
3.3 Procurement or logistics support (distribution and transport) for commodities, diagnostic kits, PPE, and equipment for response to emerging threats	**Procurement.** a) Procure COVID-19 management support commodities that comply with host country and international regulatory, shipping, and packaging requirements to ensure that only appropriate products enter the supply system. This includes products that are manufactured at facilities that meet good manufacturing practice (GMP) certification requirements, as recommended by the World Health Organization (WHO) or are pre-qualified by WHO. b) Develop and implement an inspection and quality assurance process for assessing and monitoring product quality. Considerations include, but are not limited to: ● Selecting reliable and vetted suppliers; ● Using existing quality assurance mechanisms established by WHO (see references below); ● Establishing a system to report poor quality, expired, or defective products; and ● Performing regular pre- and post-shipment testing. c) Maintain copies of procurement records (e.g., manufacturing records, Certificate of Analysis, test data, regulatory certificates, etc.) and copies of quality documentation on file. d) Refer to the following documents for guidance on the procurement and quality assurance process: ● WHO. *National Medicines List/Formulary/Standard Treatment Guidelines* (accessed September 30, 2016) ● WHO. *Prequalification Programme: A United Nations Programme Managed by WHO* (accessed September, 2016)

	• USAID DELIVER Project. *Procurement Strategies for Health Commodities: An Examination of Options and Mechanisms within the Commodity Security Context* (2006) • WHO. *Operational Principles for Good Pharmaceutical Procurement* (1999) • WHO. *Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce* (accessed September 30, 2016) **Storage.** See Sub-activity 2.3. **Distribution** Develop and implement SOPs for the safe distribution of COVID-19 management support commodities being transported in bulk in motorized vehicles. Distribution considerations include, but are not limited to: transport needs and availability, fleet management and monitoring, theft prevention procedures, accident and spill response, incident reporting, and vehicle maintenance. Refer to the following documents for guidance when developing SOPs: • John Snow, Inc./USAID DELIVER Project in collaboration with WHO. *Guidelines for the Storage of Essential Medicines and Other Health Commodities* (2003). • USAID DELIVER Project. *Guidelines for Warehousing Health Commodities* (Second Edition 2014). Task Order 4. • WHO Guidance for laboratories shipping specimens to WHO reference laboratories that provide confirmatory testing for COVID-19 virus https://apps.who.int/iris/bitstream/handle/10665/331639/WHO-2019-nCoV-laboratory_shipment-2020.3-eng.pdf • CDC Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons for Coronavirus Disease 2019 https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html
3.4 Assessment of waste management capacity for entities involved in COVID-19 management to ensure proper disposal and limit vectors of disease via improperly managed waste	The implementing partner must have access to technical expertise to (a) assess planned activities for potential impact on waste issues (generation, handling, disposal) and to develop, monitor, and report on implementation of management and waste management plans, and (b) ensure that training and technical assistance materials are accurate and reflect sound waste management. Further references on waste management plans are provided in Sub-activity 2.3.
3.5 Procurement, distribution, and use of **waste management equipment and systems**	**Sub-contracting for waste management services.** In selecting contracted waste service providers, the IP must undertake reasonable efforts to ascertain that the providers are compliant with host country environmental, health, and safety requirements, and employ

	responsible practices for the disposal of waste resulting from the testing process. Waste workers should be provided appropriate PPE, which should be part of the verification prior to subcontracting. See WHO Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19): https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf **For sub-contract of off-site recycling, treatment, and disposal.** Ensure sub-contractor providing recycling, treatment, or disposal service have SOPs established for properly transporting, treating, and disposing of healthcare waste offsite in conformance with host country requirements and international best practices. Considerations include but are not limited to: waste exportation protocols (if applicable), operational and monitoring requirements, and appropriate transport, treatment, and/or disposal documents and records. Maintain contractor licenses and transportation documentation and records on file (e.g., consignment note or manifest form). **Procurement, distribution or use of waste systems directly by the IP.** If procuring, distribution or using waste management equipment of systems, the IP must develop and implement a Waste Management Plan (WMP) (or comparable Standard Operating Procedures [SOP]) that provides procedures for managing wastes in conformance with international best practices and host country requirements. Management considerations include, but are not limited to: waste minimization procedures, proper handling of wastes (including personal protective equipment [PPE]), storage of wastes, containers and labeling, safe treatment and disposal practices and procedures, inspection protocols and frequency, and documentation requirements (e.g., waste manifests). For waste produced by the IP supported activities, the wastes are subject to the relevant requirements under the WMP. Refer to the following documents for guidance when developing a WMP: • WHO. *Safe Management of Wastes from Health-Care Activities* (2014) • WHO. *Preparation of National Health-Care Waste Management Plans in Sub-Saharan Countries* (2005) • USAID. Integrated Waste Management Plan (WMP) (2019) • USAID. Sectoral Environmental Guidelines for Healthcare Waste. (2019)

	• USAID. Sectoral Environmental Guidelines for Solid Waste. (2018) Note: If the implementer does not have adequate resources to properly handle healthcare waste on-site according to host country requirements and international best practices, contractor support or coordination with another USAID award may be acquired to ensure healthcare waste is properly managed. **Exportation of wastes.** Exportation of waste across international boundaries has specific international and Agency requirements, which will be addressed on a case by case basis. The A/COR, MEO, and funding agency BEO must provide approvals of the process for managing the transportation and potential international shipment of hazardous waste for disposal. If the international disposal of hazardous waste is to be conducted by a third party, the Request for Proposal (RFP) for these 3rd party services for the international shipment must be approved by the A/COR with concurrence by the BEO. Solicitation of services for international exportation of hazardous material for disposal may not be initiated without approval of the RFP. Exportation of wastes must be in accordance with the Basel Convention and export and receiving country regulations. Additional information can be found at • Basel Export-Import Control Tool: Allows you to view information on the regulatory requirements, applicable treaties, available facilities, competent authorities, and other country-specific information pertaining to the transboundary movement of hazardous or other wastes . • Basel Convention - Guidance Manuals: List of resources for instructions and guidance for implementation of the Basel Convention and environmentally sound management of covered wastes. The following contains general references on waste management. The GH Environmental Management Portal (please request access through the COR) sections for additional guidance specific to GH activities, including: • *Waste Management – General Information* • *Healthcare Waste Management* • *Incineration*
Activity 4 - Support for use of disinfectants or germicides *for the purposes of COVID-19, disinfectants and germicides are used interchangeably here as chemicals for destruction of viral pathogens	
4.1 Procurement, distribution, training, and use	a) Per USAID 22 CFR 216.3(b), refer Annex 3 and 4 for more details on:

of **disinfectants or germicides on surfaces** (for ultra low volume [ULV] spraying and fogging and air disinfection see 4.2) -in community setting -in health facilities -in private homes -in offices and business -in public spaces	● approved active ingredients per USAID Pesticide Procedures ● selection of products ● understanding labels ● risks and preparation summaries for common disinfectants recommended for COVID-19 ● example mixing instructions and PPE b) Local authorities, host country health ministries, and international and US authorities should be consulted for a list of registered and effective products for the particular pathogen of concern. c) For all manufactured and homemade products when selecting a disinfectant or germicide for a particular use, the user should be informed and take into consideration the human and environmental hazardous properties of the chemical and know how to use it properly. Safety Data Sheet (SDS) for all materials used and use instructions should be read and understood by all individuals, who will use the chemicals. d) Provide appropriate PPE and training on PPE use for the disinfectant and task (i.e., distribution, or training or direct use) (see Annex 4). e) Ensure that all transport and storage of disinfectants are in accordance with label instructions. Consider temperature, proximity of chemicals to one another, providing directions for spill cleanup, and access restriction. f) Ensure proper treatment of excess disinfectants (e.g., neutralization or dilution) and disposal of empty containers. g) The partner must complete the simplified disinfectant planning and use tracker (see Annex 3) for their planned interventions using disinfectants and retain the document with their EMMP. h) The A/COR and MEO must review and clear on the disinfectant planning and use tracker. The following resources are available with information on disinfection, but may be updated or changed with the evolving context: ● USEPA recommended germicides for cleaning surfaces: https://www.cdc.gov/coronavirus/2019-ncov/prepare/prevention.html ● WHO Getting your Workplace Ready for COVID-19: https://www.who.int/docs/default-source/coronaviruse/getting-workplace-ready-for-covid-19.pdf?sfvrsn=359a81e7_6 ● UNICEF, WHO, IRCF Key Messages and Actions for COVID-19 Prevention and Control in Schools https://www.who.int/docs/default-source/coronaviruse/key-

	messages-and-actions-for-covid-19-prevention-and-control-in-schools-march-2020.pdf?sfvrsn=baf81d52_4 ● CDC's Cleaning and Disinfection of Households: Interim Recommendations for U.S. Households with Suspected or Confirmed Coronavirus Disease 2019 ● CDC's Coronavirus Disease Site ● CDC's How to Protect Yourself ● CDC's Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008 Update: May 2019
4.2 Procurement, distribution, training, and use of **ULV spraying or fogging and air disinfection** -in community setting -in health facilities -in private homes -in offices and business -in public spaces *ULV and air disinfection requires special equipment that produces small droplets or vapor.	a) Verify that any procured or distributed ULV or air disinfection equipment is approved by host country regulation, including import laws. b) Ensure that all transport and storage of disinfectants are in accordance with label instructions. c) All use of ULV spraying, fogging, and air disinfection must be carried out by professional applicators and organizations, regardless of the setting. d) Verify any host-country certifications are held by the professional applicators and that PPE, as appropriate, is provided to sprayers. e) When supporting training of ULV or air disinfection, the implicated staff must be provided training on appropriate use of the disinfectant, PPE use, health and environmental impacts, and appropriate waste management methods. f) Appropriate PPE must be provided to trainees or staff supported by the IP for use and training. The appropriate references should be identified at the time of use. Possible resources are: ● CDC Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008 Update: May 2019 ● FDA-Cleared Sterilants and High-Level Disinfectants with General Claims for Processing Reusable Medical and Dental Devices ● CDC Guideline for Disinfection and Sterilization of Healthcare Facilities (2008). Updated May 2019. https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines-H.pdf ● CDC's Information for HealthCare Professionals

	• WHO's Country & Technical Guidance - Coronavirus disease (COVID-19)
4.3 Research and introduction of **new** disinfection/ sterilization technologies (e.g., UV, vaporized hydrogen peroxide, ozone, no-touch room disinfection)	a) Research for new technologies must consider applicable host country laws and regulations. b) Application of the technology must be conducted by trained, professional healthcare or research institution staff. c) Health and safety protocols must be developed for the new technology prior to use, including any PPE needs, neutralization or waste treatment needs.
Activity 5 – WASH **(see Category #7 for construction of latrines)**	
5.1 Distribute **WASH supplies to households**	With the distribution of WASH supplies, there must be associated training and capacity building on proper use, particularly of any disinfection materials, and management of solid waste. Activities must also adhere to host country guidelines for rural sanitation and latrines constructions. See reference USAID Sector Environmental Guidelines for Water and Sanitation: https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/seg-water-supply/pdf CDC How to Protect Yourself: https://www.cdc.gov/coronavirus/2019-ncov/prepare/prevention.html
5.2 Supply drinking water via installation of **household point of use treatment systems** (see 5.1 for chlorine tablets, e.g., aquatabs)	**Good-practice design standards** must be implemented for new construction and rehabilitation works, generally consistent with USAID's *Sector Environmental Guidelines: Water Supply & Sanitation:* https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/seg-water-supply/pdf. Additional guidance for WASH in the context of COVID-19 is found at: WHO Water, Sanitation, Hygiene and Waste Management for COVID-19: https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19
5.3 **Technical assistance** for the design and implementation of supplemental water and sanitation facilities	Technical assistance to design water and sanitation facilities should also include provision of the following: • Clean and disinfect water systems following construction or maintenance activities using chemical disinfectants (e.g. chlorine). • Monitor disinfectant residual levels in water source and ensure

	that levels are in compliance with WHO guidelines. ● Implement a water surveillance program to monitor the quality of the water supply system throughout operation. Document water testing requirements, including responsible parties, frequency of testing, and protocols in the Water Quality Assurance Plan (WQAP). Frequency of testing may vary based on population served, reliability of the quality of the drinking-water, degree of treatment, presence of local risk factors, and local or host country requirements. ● Provide outreach, educational materials, and training to users/community on the proper use, operation, and maintenance of the water supply system to ensure the long-term sustainability of the system. Additional references are provided at: WHO Water, Sanitation, Hygiene and Waste Management for COVID-19: https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19
Activity 6 – Food Security	
6.1 Procurement and distribution of food commodities 6.2 Safe handling of food commodities	CDC currently notes that potential for contracting COVID-19 from food is low: https://www.cdc.gov/foodsafety/newsletter/food-safety-and-Coronavirus.html FDA regularly updates food safety issues with COVID-19, but currently are not issuing new guidance for those handling food who are not ill. Find current updates at: https://www.fda.gov/food/food-safety-during-emergencies/food-safety-and-coronavirus-disease-2019-covid-19 However, during the distribution of food aid, groups may congregate. Procurement and food distributions and handling must be appropriate to the situation and must consider social distancing and safe practices to prevent the spread of disease. See CDCs Disease Prevention Site: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fprevention.html
6.3 Fumigation of food commodities	Fumigation is subject to the Fumigation PEA. https://www.usaid.gov/documents/1860/pea-t-3-template-fumigation-management-plan

	As such, the Fumigation PEA requires the IP to develop and implement a Fumigation Management Plan (FMP) that describes the steps that will be taken before, during, and after the fumigation process to ensure that fumigants are applied safely and effectively. The FMP documents pertinent information such as: responsible parties (e.g., storage facility manager, fumigators); emergency contact information; personal protective equipment and staffing notification and emergency response plans; commodities being fumigated, dosage and downtime calculations; gas concentration monitoring logs; and any accidents or exceptions to the procedures. If using a fumigation contractor (third party), the contractor is responsible for storing fumigants according to label directions, host country requirements, and international best practices. Refer to the following documents for guidance when developing an FMP: • USAID. Phosphine Fumigation Management Plan (FMP) (Sheeted Stacks Only) (August 2014 • USAID. Phosphine Fumigation of Stored Agricultural Commodity: Programmatic Environmental Assessment (November 2013) • USAID. Phosphine Fumigation of Stored Agricultural Commodity: Programmatic Environmental Assessment Tool Annex (November 2013) Ensure that fumigation is performed by trained and licensed applicators and that they have the ability to comply with the FMP. Contractual language with the service provider will include requirements to comply with host country laws governing pesticide use and with the FMP.
Activity 7 - Small Scale Construction and Rehabilitation To qualify as a small-scale activity, the construction/rehabilitation must meet ALL the following criteria, which would be considered complicating factors: (a) disturbs an area less 1000 m^2; (b) has a total cost less than $200,000; (c) will not involve resettlement; AND (d) is not in or adjacent to an undisturbed local ecosystem.	
7.1 Refurbishment/rehabilitation	Conduct a site survey to adequately evaluate site conditions based on the size and complexity of the construction activity. The implementing partner must develop a design plan that includes the use of appropriate building materials and complies with international best management practices and host country laws and regulations. The implementing partner will develop a waste management plan that includes procedures for properly disposing of nonhazardous and

	hazardous materials and recover reusable materials to reduce the disposal of construction debris by recycling. USAID developed a set of resources that analyze potential environmental impacts associated with activities common to USAID, including indirect impacts from technical assistance. For additional analyses of environmental impacts in construction, healthcare facilities, healthcare waste, solid waste management, and housing, among others, refer to *USAID Sectoral Environmental Guidelines and Resources* (https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/seg-construction/pdf)
7.2 Construction of latrines 7.3 Construction of boreholes or water systems	**Good-practice design standards** must be implemented for new construction and rehabilitation works, generally consistent with USAID's *Sector Environmental Guidelines: Water Supply & Sanitation:* https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/seg-water-supply/pdf. The COVID-19 virus has not been detected in drinking-water supplies or via sewerage systems with or without wastewater treatment. Based on current evidence, the risk to water supplies and sanitation systems is low. is low; however, additional references are provided by WHO that should be considered for WASH activities. See WHO Water, Sanitation, Hygiene and Waste Management for COVID-19: https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19 These standards must be specified in the EMMP. ● For **water supply,** these activities must include siting of new wells away from groundwater contamination sources (e.g. latrines, cesspits, dumps) (generally at least 15-30m), exclusion of livestock from water points, and prevention of standing water at water supply points. ● For **latrines**, they must include provisions to prevent contamination of water supplies, appropriate choice of latrine type given local environmental conditions (e.g. pit latrines are rarely suitable in locations where the water table is high), provision of hand wash stations, and development and implementation of a system for ongoing latrine cleaning and maintenance

	● **Capacity-building** in equipment/system maintenance must be co-programmed with construction/installation of small-scale water supply and sanitation infrastructure. **Water quality assurance plan.** More specifically, the Mission shall ensure that the implementing partner develops and implements a Water Quality Assurance Plan that addresses how the partner will ensure the provision of safe drinking water to communities served under the subject activity. This Plan should be approved by the MEO and should assure that drinking water sources meet local and WHO water quality standards.
7.4 Connecting to existing utilities (water, electricity) 7.5 Backup energy generation	Utility connections that are the responsibility of the IP will receive the approval of the local authorities. IPs will verify that the connection does not burden the community with reduction in services (e.g., aquifer drawdown is not expected). An IP that is providing backup energy generation will consider green energy provision as an option for generation if the situation allows (e.g., solar may make sense to install on an existing facility used for an outbreak but may not be reasonable for temporary shelters).
7.6 Installation of temporary units (quarantine units, staging areas, offices, mobile supply warehouses, screening facilities)	Conduct a site survey to adequately evaluate site conditions based on the size and complexity of the activity. The IP will verify that the site selected for the installation is not prone to flooding, landslides, or considered sensitive habitat. The implementing partner must develop a design plan that includes the use of appropriate building materials and complies with international best management practices and host country laws and regulations. The implementing partner will develop a waste management plan that includes procedures for properly disposing of nonhazardous and hazardous materials and recover reusable materials to reduce the disposal of construction debris by recycling. USAID developed a set of resources that analyze potential environmental impacts associated with activities common to USAID, including indirect impacts from technical assistance. For additional analyses of environmental impacts in construction, healthcare facilities, healthcare waste, solid waste management, and housing, among others, refer to USAID Sectoral Environmental Guidelines and Resources (https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/seg-construction/pdf).
Activity 8 Small and medium enterprises (SMEs) in support of COVID-19 response	

8.1 Training, capacity building, small grants, technical assistance, purchase of equipment or supplies, or financing for small and medium scale enterprises (SMEs). Illustrative new SMEs responding to COVID-19 may include but not limited to: -PPE production -Sanitizer production -Medical supply production -Delivery services -Technology development -Use of UAVs to deliver samples/products	a) Activities shall be conducted following principles of USAID small scale guidelines chapters: https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/sector-environmental-guidelines-resources#ms b) For support to banks, financial institutions, or small grants, activities will be screened to categorize the SME's work to the types and significance of environmental impacts they generate. c) Assistance for SME must comply with local, national, USAID, or its own organizational environmental policies. Yet, it is unreasonable to expect for IPs to conduct a detailed assessment of the impacts of every SME they work with. The goal of the screening phase is to determine quickly and easily assess if an assistance request from an SME (for a loan, business planning, accounting training, etc.) will need environmental review before it can be approved. d) With activities involving hazardous materials, the implementing partner must work with the business to develop a written plan to ensure appropriate procurement, storage, management and/or disposal of these materials.

ANNEX 3. APPROVED DISINFECTANTS AND PESTICIDE PROCEDURES ANALYSIS

This annex summarizes the information that should guide USAID and its partners in selecting disinfectants for different uses and in different settings. This annex also completes a mandatory detailed analysis of the use of disinfectants in response to the Agency's Pesticide Procedures, which can be referenced in the IEE Amendment by each operating unit.

For the purpose of this document, uses of disinfectants (germicides) are divided into general use cleaning and uses for ultra-low volume (ULV) spraying or fogging and air disinfection. Some non-medical-use germicides utilized for cleaning inanimate objects and surfaces (environmental surfaces) are classified by the US Environmental Protection Agency (USEPA) as pesticides. This definitional distinction does not suggest that non-medical disinfectants are more toxic than medical use disinfectants. For purposes of USAID environmental review, however, this USEPA definition triggers the Pesticide Procedures analysis found at 22 CFR 216.3(B)(1)A-L.

CONDITIONS FOR DISINFECTANTS OR GERMICIDES

USAID programs seeking to provide guidance to businesses, institutions and individuals in the procurement and use of disinfectants and sterilants on environmental surfaces (i.e., are not providing guidance on their use for medical purposes) should comply with Conditions for Use of Disinfectants or Germicides (see Part a) and seek guidance primarily from local authorities. USAID programs seeking to provide guidance for use of disinfectants for ULV fogging and air disinfection should comply with conditions for ULV Spraying or Fogging and Air Disinfection (see Part b).

a) **Conditions for Use of Disinfectants or Germicides**

For activities described below, use of disinfectants or germicides constitutes use of pesticides:

- Procurement and distribution of disinfectant or germicides by partners to all facilities, community health workers, businesses, public institutions, and households for cleaning and disinfection.
- Support for disinfection campaigns by local authorities
- Training and demonstration of disinfectant or germicide preparation and use as well as solid and liquid waste management.

This is because disinfectant or germicide use on non-medical surfaces is considered use of a pesticide and regulated by USEPA, and therefore, under 22 CFR 216.3(b)(1)(i) requires USAID Pesticide Procedures' "12-factor analysis."

Approved Active Ingredients:

Use only the following AIs as a sole ingredient and/or in combination of ingredients, that are registered and approved by USEPA and per the COVID-19 PIEE for use of cleaning and disinfecting surfaces:

- **Alcohols:** Ethanol, Isopropanol, Triethylene Glycol
- **Salts**: Ammonium Carbonate, Ammonium Bicarbonate, Sodium Carbonate, Sodium Chlorite, Sodium Dichloro-S-Triazinetrione, Sodium Dischloroisocyanurate Dihydrate, Sodium Hypochlorite
- **Acids:** Citric, Hypochlorous, Glycolic, L-Lactic, Octanoic, Peracetic, Peroxyacetic, Peroxyoctanoic, Phenolics
- **Peroxides:** Hydrogen Peroxide, Peroxyhydrate
- **Quaternary Ammonium** compounds
- **Other ingredients:** Silver ions, botanical oil thymol

Selecting Products:

a) Select products that contain active ingredients or mixture of active ingredients that are approved by this COVID-19 PIEE listed below. For selecting which concentrations are effective, it is best to consult the USEPA-approved list of products and identify same or similar products.

b) Local authorities, host country health ministries, and international and US authorities should be consulted for a list of registered and effective products for the particular pathogen of concern.

Safety and Use:

a) For all manufactured and homemade products when selecting a disinfectant or germicide for a particular use, the user should be informed and take into consideration the human and environmental hazardous properties of the chemical and know how to use it properly. Safety Data Sheet (SDS) for all materials used and use instructions should be read and understood by all individuals, who will use the chemicals.

b) Provide appropriate PPE and training on PPE use for the disinfectant and task (i.e., distribution, or training or direct use) (see Annex 4).

c) Ensure that all transport and storage of disinfectants are in accordance with label instructions. Consider temperature, proximity of chemicals to one another, providing directions for spill cleanup, and access restriction.

d) Ensure proper treatment of excess disinfectants (e.g., neutralization or dilution) and disposal of empty containers.

Reporting:

a) The partner must complete the simplified disinfectant planning and use tracker for their planned interventions using disinfectants and retain the document with their EMMP.

b) The A/COR and MEO must review and clear on the disinfectant planning and use tracker.

Disinfectant Planning and Use Tracker				
Place of Use **(e.g., school, clinic, business)**	**Product Name** **(e.g., Omo or homemade)**	**Type of Disinfectant** **(e.g., bleach, acid, alcohol, ammonia)**	**User** **(e.g., staff member, healthcare worker, community health volunteer)**	**Provided instruction and PPE recommendation** **(yes, no, or unknown)**
[Example] Primary schools	Homemade bleach solution (1 part chlorine bleach to 9 parts water)	Bleach	Teachers and Janitors	Yes

b) **<u>Conditions for Ultra-low volume (ULV) Spraying or Fogging and Air Disinfectants or Germicides</u>**

For activities described below, use of disinfectants or germicides constitutes use of pesticides:

- ULV fogging and air disinfection and community-wide spaying;
- ULV fogging and air disinfection in hospital, clinics, and schools.

Use of germicides for air disinfection and with fogging require special equipment and training. Best management practices, health and safety precautions, and environmental regulations are specified by lead health organizations, such as CDC, WHO, or host country ministries of health, and therefore, these disinfection methods require professional application.

In support of ULV and air disinfection, the following conditions apply:

a) Verify that any procured or distributed ULV or air disinfection equipment is approved by host country regulation, including import laws.
b) Ensure that all transport and storage of disinfectants are in accordance with label instructions.
c) All use of ULV spraying, fogging, and air disinfection must be carried out by professional applicators and organizations, regardless of the setting.
d) Verify any host-country certifications are held by the professional applicators and that PPE, as appropriate, is provided to sprayers.
e) When supporting training of ULV or air disinfection, the implicated staff must be provided training on appropriate use of the disinfectant, PPE use, health and environmental impacts, and appropriate waste management methods.
f) Appropriate PPE must be provided to trainees or staff supported by the IP for use and training.

MANDATORY 22 CFR 216.3(B)(1) - 12-FACTOR ANALYSIS FOR PESTICIDES

The following 12-factor analysis mandated by 22 cfr 216.3(b)(1) is intended to assist and serve as a basis for an IEE Amendment (or new IEE, as appropirate) development for implementing partners engaged in activities requiring use of germicides that fall under definition of pesticides as described above. Modifications and additions of relevant information can be made as appropriate.

A. U.S. Environmental Protection Agency (US USEPA) registration status of the proposed pesticides

Active ingredients (AIs) and combinations of AIs listed above are registered by USEPA.

B. Basis for selection of pesticides

These pesticides were recommended by USEPA as effective for treatment of environmental surfaces and are based on full product list provided by USEPA at:

https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

C. Extent to which the proposed pesticide use is part of an IPM program

These AIs are recommended in combination with handwashing measures and recommendations to avoid touching face, eyes and mouth with unwashed hands. The following site provides links to both CDC recommended hand cleaning procedures:

https://www.cdc.gov/coronavirus/2019-ncov/prepare/prevention.html

D. Proposed method or methods of application, including the availability of application and safety equipment

Methods of application of products are in accordance with the label and manufacturer instructions. For home made products follow strictly dosage instructions provided by relevant authorities.

E. Any acute and long-term toxicological issues with the proposed use, and measures available to minimize such hazards

All chemical disinfectants are, by their very nature, potentially harmful or toxic to living organisms. Like other toxic substances, the chemical disinfectants can enter the body through several routes, including absorption through skin or mucous membrane, inhalation and ingestion. Sometimes a chemical substance can enter through more than one of the routes. However, chemical disinfectants would be effective and safe tools when handled properly with the safety measures in place. If misused, they can be hazardous and harmful to people and the environment.[1]

Accidental exposure in high doses may result in acute toxic reaction such as skin irritation, dizziness or nausea, or they may be permanent: blindness, scars from acid burns, mental impairment and other adverse health effects. Acute toxicity is often seen within minutes or hours after a sudden, high exposure to a chemical. However, there are a few instances where a one-time high-level exposure causes delayed effects. Symptoms of exposures may not appear for several days.

As a general rule, chronic toxicity appears many years after exposure first began. The health effects may occur where exposure has taken place repeatedly over many years. For this activity, repeated exposure over the long term is not anticipated.

Disinfectants can pose physical/chemical risks and can be flammable or explosive. Products must be stored at temperatures designated by their labels/Safety Data Sheets.
All AIs and products should be accompanied by the label and, where available, a Safety Data Sheet. First aid instructions must be available to users and health workers.
All disinfecting products/AIs and their containers must be properly triple rinsed away from all water sources, punctured and properly recycled or disposed of, never reused.

F. Effectiveness of the requested pesticide for the proposed use

The AI approved by this IEE are contained in USEPA approved/recommended products for disinfection of environmental surfaces against COVID-19.

G. Compatibility of the proposed pesticide use with target and non-target ecosystems

Disinfectants contribute to air and water pollution during their manufacture and use. Cleaning, sanitizing and disinfecting products can increase indoor air pollution. However, AIs identified by USEPA as effective against COVID-19 are recommended by this IEE.

H. Conditions under which the pesticide is to be used, including climate, geography, hydrology, and soils

AIs in products recommended will be used mostly indoors and surfaces around structures. These AIs/products should be used away from ambient environmental water sources.

I. Availability of other pesticides or non-chemical control methods

Only AIs/Products registered by USEPA are recommended. Other AIs, such as aldehydes that are approved by EU for disinfection, are not covered by this IEE.

J. Host country's ability to regulate or control the distribution, storage, use, and disposal of the requested pesticide

Most host countries in Africa have limited frameworks for regulation of pesticides and most do not regulate disinfectants for use on environmental surfaces. Regulation of disinfectants is more likely to be under the auspices of Ministries of Health (MoH). Most countries in Africa have a network of health clinics that can be instrumental for Training of Trainers (TOT) and promulgation of guidelines for use of disinfectants.

K. Provision for training of users and applicator

Guidelines, training materials and awareness built through Social Behavior Change Communication (SBCC) messaging should be developed for each country, translated to local languages, and distributed through MoH networks. These should also include a list of AIs, labels, SDSs, and instructions for first aid and environmental controls.

L. Provision made for monitoring the use and effectiveness of each pesticide

Use and effectiveness will be tracked through regular reporting by the partners supporting the actions involving germicides. Overall, monitoring effectiveness in limiting spread of COVID-19 will depend on numerous factors that are likely to be monitored as part of disease surveillance by host countries' Ministries of Health and their international donors.

[1] https://www.labour.gov.hk/eng/public/os/C/Disinfectants.pdf

ANNEX 4: PRACTICAL GUIDANCE FOR USE OF DISINFECTANTS

This annex provides resources for the safe use of disinfectants, including specific practices related to COVID-19. Since information and best practices are still evolving, users should frequently visit websites for updates and maintain contact with their local health authorities.

DISINFECTION PROCEDURES

Disinfection at a household with a suspect or confirmed case of COVID-19:

A complete guide to disinfecting households with suspected or confirmed COVID-19 cases is available at: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html

When using manufactured product for disinfection of inanimate objects:

a) Select products that contain active ingredients or mixture of active ingredients that are approved by this IEE. For selecting which concentrations are effective, it is best to consult the USEPA-approved list of products and identify the same or similar products. A full list of products approved is available at: https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

b) Always ensure that the product has a proper label. Labels of disinfectants should include the following information:

- Product name
- Company name and address
- Net contents
- Manufacturing/host country registration detail
- Active ingredients statement
- Child hazard warning
- Hazard signal word
- First aid instructions
- Precautionary statements and requirements for use of PPE
- Environmental hazards statements
- Physical/chemical hazards statements
- Directions for use and misuse statement
- Storage and disposal instructions

c) Always use products in accordance with the label. Strict attention must be given to the proper use of a product with regard to its application, effectiveness, and associated hazards (human, animal, and environment). Where possible, obtain the Safety Data Sheet that provides more extensive product detail.

Directions for use must specify:

- The surfaces, objects or inanimate environments intended for treatment (floors, walls, bathroom surfaces, etc.)
- The major areas in which the product is intended for use (hospitals, restaurants, homes, schools).
- The level of potency (e.g., Sanitizer, Disinfectant, Sporicide)
- Pathogens against which product is effective
- How the product must be applied
- Pre--cleaning steps
- Recommended use dilution and provide instructions for preparing it including the units of measure (ounces, quarts).
- Method of application
- Contact time
- How to remove the product from the surface after the recommended exposure time[1]

When using products ensure safe procurement, transportation, handling, use, storage, and material and container disposal. For information about health, physical and environmental hazards and how to prevent or mitigate accident consult the product safety data sheet, build awareness among users and monitor safer use.

When using homemade products for disinfection of inanimate objects:

> **Caution:** This section is included only because shortages of manufactured disinfectants and cost considerations may cause implementing partners and people in their communities to turn to mixing their own disinfectants from available concentrates. Such a practice presents risks that should be understood and minimized.

Natural household disinfectants may be less effective than commercial household disinfectants. It is important to be informed on hazards of AI(s) used for homemade product preparations. Where possible, SDS sheets should be obtained for AI(s) used in preparing homemade products. The SDS information and risk assessment will help determine, the PPE requirements, describe health hazards of unprotected exposure to people and animals, describe physical hazards such as flammability and explosion, and environmental hazards such as toxicity to aquatic organisms, provide hazard statements and first aid instructions and instructions for use, storage and disposal of chemical used in making of a disinfectant.

COVID-19 CATEGORIES OF DISINFECTANTS – CONSIDERATIONS FOR SAFE USE

Bleach

Homemade disinfectants are most commonly made from household bleach.

Household bleach is usually a mixture of chemicals, its main active ingredient is a solution of ~3-6% sodium hypochlorite (NaOCl), sometimes mixed with small amounts of sodium hydroxide, hydrogen peroxide, and calcium hypochlorite. Unexpired household bleach will be effective against coronaviruses when properly diluted.

Bleach solution preparation recommended by CDC[1]:

Diluted household bleach solutions can be used if appropriate for the surface.

- Prepare a bleach solution by mixing:
    - 5 tablespoons (1/3rd cup) bleach per gallon of water or
    - 4 teaspoons bleach per quart of water or
    - 1 part bleach to 9 parts water

- Follow manufacturer's instructions for application and proper ventilation.
- Check to ensure the product is not past its expiration date.
- Never mix household bleach with ammonia or any other cleanser, as toxic gases can be produced.

Chlorine compounds found in bleach are unstable and react with a variety of chemicals and water when it is released into the environment. Because chlorine is so reactive, it is not normally detected in the environment except for very low levels. Bleach spilled into surface water may adversely affect aquatic organisms. Inhaling bleach fumes may cause eye, nose, throat irritation depending on dosage. The effects will depend also on exposure duration. In general, people who suffer from respiratory conditions such as allergies or hay fever, or who are heavy smokers, tend to experience more severe effects than healthy subjects or nonsmokers. Spilling hypochlorite solution on the skin can produce irritation. The severity of the effects depends on the concentration of sodium hypochlorite in the bleach. Drinking small amounts of hypochlorite solution (less than a cup) can produce irritation of the esophagus. Drinking concentrated hypochlorite solution can produce severe damage to the upper digestive tract and even death. These effects are most likely caused by the caustic nature of the hypochlorite solution and not from exposure to molecular chlorine. Long-term exposure to small amounts of sodium hypochlorite has not shown to have significant impacts on human health.[2]

Precautions for safe handling: Avoid direct contact with skin, eyes and clothing. Use protective equipment. Provide adequate ventilation. Do not breathe mist, or gas. Wash thoroughly after handling. Do not eat, drink, or smoke when handling chemicals.

Recommended PPE: Individual protection measures/personal protective equipment: Final choice of appropriate protection will vary according to methods of handling or engineering controls and according to risk assessments undertaken.

Respiratory protection: respiratory equipment with replaceable vapor/mist filter. Hand protection: rubber, nitrile, neoprene or PVC gloves

Eye / face protection: safety glasses with side shields

Skin protection: suitable protective workwear, including boots, lab coat, apron or coveralls as appropriate, to prevent skin contact.

Environmental precautions: Avoid entry of product into drains, sewers, surface/ground water system or soil.

http://www.mvc.com.ph/wp-content/uploads/2017/07/MSDS-Hypo.pdf (for 7% bleach)

Alcohols

Alcohols that are components of drinking beverages and rubbing alcohols are recommended for sanitizing, not for drinking. Alcohol products must be at least 70%. Most drinking beverages are below 48% alcohol and not appropriate for sanitizing.

Rubbing alcohol products that are at least 70 percent alcohol reportedly will kill viruses. When using rubbing alcohol, do not dilute it below 70%. Alcohol higher than 70% is not always better, and 70% alcohol is better than 91% because water plays a key role in protein denaturation. Consumer Reports says rubbing alcohol is safe for all surfaces but can discolor some plastics.

Although it has the word alcohol in its name, rubbing alcohol is completely different from the ethyl alcohol found in alcoholic beverages. Isopropyl alcohol, also referred to as isopropanol and IPA, is twice as toxic as ethanol. Swallowing just 8 ounces, or 240 milliliters, of rubbing alcohol can be fatal — but as little as 20 milliliters mixed with water can make a person sick.

Inhaling rubbing alcohol can also cause serious side effects, including headache, nausea, vomiting and irritation of the nasal passages and lungs. Inhaling isopropanol fumes can cause a loss of consciousness.[4]

http://www.maxill.com/us/downloads/dl/file/id/23/isopropyl_alcohol_70_sds.pdf

Precautions for safe handling of solution 70%: Do not drink or inhale. Inhalation may cause dizziness or drowsiness. Avoid contact with eyes, may cause serious eye irritation, Both liquid and vapor are flammable. Use proper ventilation. Avoid heat, sparks and open flame.

Respiratory protection: When exposed over long period of time to high concentrations use respirator.

Eyes: Protective glasses or goggles if desired

Skin: Vinyl or rubber gloves if desired

https://www.hydroxlabs.com/images/pdf/SDSPDF/SDS-002-SDS-Isopropyl-Alcohol-70%25-1-09-18.pdf

Alcohol converts to chloroform when mixed with bleach. Breathing in chloroform can cause fatigue, dizziness, and fainting.

Hydrogen Peroxide

Hydrogen peroxide is typically sold in concentrations of about 3%. Hydrogen peroxide at this concentration should be able to neutralize the coronavirus. It is recommended to be left on surfaces for at least 1 minute. Hydrogen peroxide is not corrosive and can be used on metal surfaces. Similar to bleach, it can discolor fabrics. Hydrogen peroxide has minimal impact on the environment as it decomposes into oxygen and water.

Precautions for safe handling of solutions over 3%: wear protective equipment, do not drink or inhale fumes, ensure adequate ventilation, keep away from ignition sources, protect from heat. Wash hands after handling, avoid contact with skin and eyes.

Respiratory protection: Not required under normal conditions of use but for persons with respiratory ailments and in high concentrations respiratory protection maybe advisable.

Eye protection: Safety glasses with side shields or goggles.

Skin protection: Use impermeable gloves.

https://www.fishersci.com/store/msds%3FpartNumber%3DS25361%26productDescription%3DHYDROGEN%2BPEROXIDE%2B6%2525%2B500ML%2BLG%26vendorId%3DVN00115888%26countryCode%3DUS%26language%3Den

Acids

Commercial products effective against Covid-19 often contain acids. Acids range from weak to very strong. Weak acids such as household vinegar are not likely to be effective against coronavirus. Concentrated industrial strength acids are not recommended as they can be extremely corrosive and can cause dangerous burns when not handled properly.[5]

Precautionary statement: Acids are highly reactive chemicals and can be appropriate for use at home only at low concentrations not appropriate for preparation of virucide (virus destroying substance). Do not prepare acids containing virucidal chemicals at home. For disinfection with acid or mixtures containing acid, use manufactured products.

Acidic compounds such as vinegar or window cleaner create chlorine gas when mixed with bleach. Excessive exposure can cause chest pain, vomiting, and even death.

Quaternary ammonium compounds

The quaternary ammonium compounds (QAC) are widely used as surface disinfectants and are an active ingredient in household cleaning products. These products are relatively low in toxicity and corrosivity. The disadvantage of QACs is their price. There are about 300 QACs all with varying anti-germicidal efficacies and screening the correct compounds for correct uses and recipes can be a challenge. Therefore, only use of manufactured products is recommended.

Precautions for safe handling: Health hazards of QACs include contact dermatitis, triggering of asthma symptoms in people who already have asthma or new onset of asthma in people with no prior asthma, eye and mucous membrane injuries from splashes or contact with mists, and oral and gastrointestinal injuries from swallowing solutions containing QACs. [6] Some household products can be diluted with water but the correct dosage effective against Covid-19 must be established. [7]

Ammonia

Ammonia mixed with bleach converts the chlorine in bleach to chloramine gas. Breathing in the fumes can cause coughing, shortness of breath, and pneumonia.

Wear PPE as specified by the product label of SDS.

Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Skin protection: Personal protective equipment may include suitable protective gloves, safety goggles and protective clothing

Eye protection: Wear eye protection/ face protection

Oils

Botanical oil thymol is an ingredient in some USEPA approved products effective against Covid-19.

Other ingredients

In addition to germicides that kill viruses, disinfectant products contain materials that remove dirt to improve the effect of the germicide on a given surface because a surface should be free of heavy soil for effective disinfection. Disinfectant cleaners contain surfactants and builders to remove soil in addition to

germicides able to kill germs. Therefore, they are effective at cleaning surfaces as well as killing germs. Other ingredients in products such as salts are added for various cleaning effects.

http://www.healthycleaning101.org/types-of-household-cleaning-products/#dis

Precautionary statement: Do not prepare home made products. Do not use other oils. There is no evidence that other oils such as tea tree oil are effective.

Do not mix chemicals or home cleaners unless you can confirm that the mixture is safe and effective.

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[1] https://www.niehs.nih.gov/news/events/pastmtg/hazmat/assets/2007/wtp_2007aic_kempter_disinfectants_508.pdf
[2] https://emergency.cdc.gov/agent/chlorine/basics/facts.asp
[3] https://www.lenntech.com/periodic/elements/cl.htm#ixzz6IPDRT1xR
[4] https://www.drugrehab.com/addiction/alcohol/drinking-rubbing-alcohol/
[5] https://aces.nmsu.edu/pubs/_g/G304/welcome.html
[6] https://med.nyu.edu/pophealth/sites/default/files/pophealth/QACs%20Info%20for%20Physicians_18.pdf
[7] https://www.thejakartapost.com/life/2020/03/24/want-to-disinfect-your-home-lipi-recommends-cleaning-products-as-alternative-disinfectants.html

ANNEX 5: ECD PERMALINKS FOR USAID COVID-19 PIEE

Each Bureau Environmental Officer (BEO) developed a Bureau-tailored COVID Programmatic IEE (PIEEs) to help Missions and DC-based OUs streamline the environmental compliance process, while ensuring appropriate mitigation measures will be put in place and monitored. These may apply to new awards, redirected or reprogrammed funds. Missions and DC-based OUs will employ these Bureau PIEEs and amend their current IEEs (or develop a new IEE) to include COVID activities. These options provide a flexible approach that permits the Agency to get ahead of the demand for funding obligation, while remaining compliant. The links below connect to Environmental Compliance Database (ECD) as permalinks for each USAID Bureau COVID-19 Programmatic Initial Environmental Examination (PIEE).

Africa: https://ecd.usaid.gov/document.php?doc_id=52763

Asia: https://ecd.usaid.gov/document.php?doc_id=52764

DCHA: https://ecd.usaid.gov/document.php?doc_id=52762

E3: https://ecd.usaid.gov/document.php?doc_id=52768

E&E: https://ecd.usaid.gov/document.php?doc_id=52766 (DCN: 2020-EE-005)

LAC: https://ecd.usaid.gov/document.php?doc_id=52767

ME: https://ecd.usaid.gov/document.php?doc_id=52765 (DCN: 2020-ME-024)

RFS: https://ecd.usaid.gov/document.php?doc_id=52769 (DCN: RFS-20-04-004)